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ABSTRACT

This study developed a scale to measure a hearing adult's bias or lack of bias toward the capabilities of deaf adults. A list of commonly held misconceptions about the capabilities of deaf people was identified through a literature review and interviews with deaf professionals. The 35 identified items formed the Opinions about Deaf People scale, which was tested with undergraduate students and then revised to form a 20-item version which was again tested. Data analysis from the second administration resulted in a coefficient alpha of .83 and a split-half reliability of .82. Item-total correlations ranged from .22 to .58. Although there appeared to be one general deaf capabilities factor, a few items also correlated moderately to strongly with an intelligence factor. Construct validity was established. The study concludes that the Opinions about Deaf People scale appears to be a reliable and valid scale for research in education, employment, and other settings. The scale itself is included. Twenty-six appendices present the study's statistical data, several related questionnaires, and demographic information. (Contains 15 references.) (JDD)

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Documentation of the Development and Validation of The Opinions About Deaf People Scale: A Scale To Measure a Hearing Adult's Belief in The Capabilities of Deaf Adults

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ABSTRACT

The purpose of this study was to develop a scale to measure a hearing adult's bias or lack of bias toward the capabilities of deaf adults. The target audience for this measurement is the population of American adults with normal hearing. The authors first developed a list of commonly held misconceptions about the capabilities of deaf people through a review of the literature and interviews with deaf professionals. An item pool was created from this list, and the 35-item Opinions about Deaf People Scale was developed and piloted with 38 undergraduate students. Based on the data analysis from this first administration, a revised 20-item version of the Opinions about Deaf People scale was piloted with 290 undergraduate students from an upper-division general education course. Data analysis from this second administration resulted in a coefficient alpha of .83 and a split-half reliability of .82. Item-total correlations ranged from .22 to .58. A factor analysis demonstrated a common general deaf capabilities factor with an Eigenvalue of 5.39. Item correlations with this factor ranged from .25 to .67. Although there appears to be one general deaf capabilities factor, a few items also correlated moderately to strongly with an intelligence factor (Eigenvalue = 1.70). The standard error of measurement for the revised 20-item version of this scale was 2.81, and the 95% confidence interval is ± 5.51. Construct validity was established through the administration of Cowen's Attitude to Deafness scale following the administration of the 20-item revised Opinions about Deaf People scale. The authors' scale correlated with Cowen's scale at .75 ($p < .001$). As a result of this study, it appears that a reliable and valid scale may have been developed that can be used for research in education, employment, and other appropriate settings. This instrument's development was motivated by the authors' belief that one of the first steps in changing negative attitudes toward deaf people is to measure and determine the attitudes that need to be changed.

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PURPOSE OF THE MEASUREMENT

Purpose

Research has shown that deaf and hearing people possess equal intelligence and capabilities (Baker & Cokely, 1980; Culton, 1975; Murphy, 1976; Nester, 1984). Although most deaf people are not able to hear and/or distinguish speech and many have problems with verbal communication (Nester, 1984), most are able to work and live independently in a manner similar to their hearing peers. Unfortunately, many deaf people have not advanced in higher education and employment. This is likely due to limited opportunities, rather than limited capabilities. Most employers and college administrators are hearing, and many believe that deaf people possess low capabilities and limited intelligence (Berkay, 1991; University of California, 1990). Such attitudes may result in the denial of opportunities for qualified and deserving deaf individuals. Before designing methods to change such attitudes, it is important to develop tools to assess the beliefs of hearing individuals about deaf people. The purpose of this study was to develop a scale to measure a hearing adult's bias or lack of bias toward the capabilities of deaf adults. The target audience for this measurement is the population of American adults with normal hearing.

DEFINING THE DOMAIN

Operational Definition

Before beginning research, it was important to operationalize the term "deaf" for the purpose of this instrument development. The following is the definition:

A deaf individual is someone who cannot hear and/or distinguish speech sounds even with amplification. Although the primary mode of communication for most deaf adults in the United States is American Sign Language, many of them take advantage of their residual (remaining) hearing and use speech and lip-reading skills to some extent. There are also deaf oralists who communicate through lip reading and speech and do not use sign language. Deaf individuals should be differentiated from hard-of-hearing individuals who can hear and distinguish speech sounds with amplification and primarily communicate through speech and lipreading.

Restricting the Group

It was determined that this scale would be limited to measuring beliefs about the capabilities of deaf adults (young to middle aged) and exclude beliefs about the capabilities of deaf children or senior citizens. The authors felt that although these three groups have much in common, there are several separate misconceptions about deaf children, senior citizens, and (non-elderly) deaf adults. Developing one instrument to focus on all three groups might be too general. The authors suggested that further research be conducted on attitudes toward deaf children and senior citizens. Due to the limited research on deaf adults, some research on deaf children was included in the literature review below.

A Review of the Literature

Intelligence. A major issue in assessing the capabilities of deaf people, is the matter of intelligence. Does the average deaf person possess the same level of intelligence as the average hearing person, or is the deaf intelligence mean lower than the hearing mean? In testing deaf people on intelligence, it has been discovered that nonverbal tests, such as the Wechsler Performance Scale, result in normal distributions equivalent to those found in the hearing population. On verbal tests, such as the Stanford Achievement Test, however, deaf people averaged one standard deviation below the mean of the hearing population (Myklebust, 1964, cited in Nester, 1984). Nester (1984) stated that many intelligent prelingually deaf people (those deafened prior to language exposure) have poor verbal skills. It is clear that a score on a verbal test is a poor measure of a deaf person's intelligence.

Academic performance. Related to intelligence is a deaf person's performance in an academic setting. A limited amount of research has been conducted in this area. Culton (1975) determined that there was no difference in the grade point averages of deaf and hearing students at Golden West College in Huntington Beach, California.

A related in-depth study comparing deaf and hearing academic performance was conducted at California State University, Northridge (CSUN) (Murphy, 1976). The differences in academic achievement between deaf and hearing students were studied during 1973 and 1974. The measure of academic achievement used was each student's GPA. GPAs were recorded over two semesters for each deaf student. Random samples of equal size were selected from hearing students' GPAs by class level through a computer program. Study 1 included 176 deaf and 176 hearing GPA observations (126 undergraduate and 50 graduate). Study 2 included 207 deaf and 207 hearing GPA observations (132 undergraduate and 75 graduate).

The grading system was based on a standard F to A assignment of grades using a 0- to 4-point scale, respectively. In Study 1, there were only two significant differences between deaf and hearing students. The hearing juniors and graduate students outperformed the deaf students in their respective grade levels. The other grade levels showed no significant differences in performance between the two groups. Study 2 revealed no significant differences in GPA between the two groups. Therefore, from this study, it appears that deaf and hearing students produced similar grades in a university environment.

Apart from actual academic performance measures, the attitudes of hearing students toward the academic performance of deaf peers have been a subject of interest in the literature. Such opinions were obtained though interviews with 30 Rochester Institute of Technology (RIT) hearing students (Brown & Foster, 1991). All subjects were mainstreamed with deaf students. The subjects stated that the deaf students performed well academically and that special accommodations (e.g., sign language interpreters) were appropriate and did not disrupt the class.

Driving. The positive opinions of deaf students' capabilities held by RIT students were likely based on extensive experience with deaf peers. The majority of hearing people in this country, however, have limited contact with hearing-impaired individuals. This is largely due to communication barriers that make it necessary for deaf people to socialize within their own community (Foster, 1987). A lack of experience with deaf people may have contributed to several misconceptions commonly held by hearing individuals. Baker & Cokely (1980) provided one such example:

> A very common myth about deaf people is that they must be bad drivers because they can't hear. However, statistics . . . complied by the National Association of the Deaf, the Department of Health, Education and Welfare, the U.S. Department of Transportation, and various state departments of motor vehicles . . . . show that, in general, deaf drivers tend to be better drivers than hearing drivers. . . . In the past, most insurance companies felt that deaf drivers constituted a high-risk group. However, now there are approximately twenty-five major companies which provide deaf drivers with auto insurance (p. 330).

Instructor bias. Another example of bias was demonstrated by Blood and Blood (1982) who studied teachers' perceptions of the achievement of deaf, hard-of-hearing, and hearing children. The subjects were kindergarten through eighth-grade instructors (n = 180). Nine male children (3 deaf, 3 hard of hearing, and 3 hearing) were recorded reading a passage. In addition, each child was photographed three different ways: (a) without a

hearing aid, (b) with a behind-the-ear aid, and (c) with a body aid. The instructors were divided into nine groups with 20 subjects each. Each group saw 9 slides (one of each child) accompanied by the audio tapes of the nine children. The subjects rated each slide as follows:

> Subjects were given a response booklet with 15 adjective pairs evaluating achievement and appearance. . . . Those related to achievement included high achiever-low achiever, intelligent-stupid, productive-nonproductive, educated-uneducated, successful-unsuccessful, leader-follower, and smart-dumb.

For scoring purposes, the positive extreme was anchored at 1 and the negative at 6.

The authors discovered that the teachers gave significantly lower achievement rating to subjects in slides accompanied by deaf speech compared to those slides with hard-of-hearing speech. The slides with hard-of-hearing speech were rated significantly lower than those with hearing speech. The slides with subjects wearing hearing aids (both types) received significantly lower achievement ratings. The lowest rated evaluations for achievement were written for slides with subjects wearing aids accompanied by deaf speech.

Attitude change. Apparently there is some concern that many hearing people hold negative attitudes toward deaf people. Enough to generate a massive literature review on methods to change negative attitudes toward deaf people. Strong and Shaver (1991) reviewed 12 studies that examined methods of improving hearing individuals' attitudes. After careful review of the literature, the authors concluded the following:

1. Brief contact with deaf people and/or short informational lectures on deafness are not sufficient to cause significant changes in attitude.

2. When hearing individuals are thrown into non-structured and/or competitive situations with deaf peers, their attitudes either develop in a negative direction or remain unchanged.

3. When hearing people are placed in well-structured, cooperative environments with deaf peers, positive attitude changes seem to take place.

4. There are major problems with the existing research on changing the attitudes of hearing people toward deaf people.

> In most of the existing literature, the methodology is weak. Commonly, the subjects are sampled improperly and important statistics, such as reliability coefficients, are not reported.

Existing scales. Before methods to change attitudes can be developed, tools to assess such attitudes must be devised. Although a few tools have been developed for individual research, only one such tool has been developed for widespread use in the field of deafness. This is the Attitude to Deafness (AD) Scale created by Cowen, Rockway, Bobrove, and Stevenson (1967). This instrument was used in four of the above-described studies examined by Strong and Shaver (1991). One reason for the Cowen scale's widespread use is its extensive and thorough development and validation process. For the original item pool, 30 items were borrowed from the Attitude to Blindness Scale (Cowen, Underberg, & Verrillo, cited in Cowen, Rockway et al., 1967). All occurrences of the words "blind" and "blindness" were substituted for "deaf" and "deafness." In addition, 20 new items were developed after an extensive review of the literature on deafness. The primary focus of this instrument was to assess hearing people's opinions on the emotional stability, behavior, social interaction, and capabilities of deaf children and adults. The pool of 50 items was piloted on University of Rochester Introduction to Psychology students (n = 100). A four-part Likert scale was used with the anchors "agree" and "disagree." A high score indicated a highly negative attitude. From this administration, item-total correlations ranging from 0 to .83 were obtained.

For the second administration, 25 items, with item-total correlations ranging from .43 to .83, were selected and piloted with a similar sample of students (n = 160). Although the range of item-total correlations were .07 to .80, only four items fell below .30. The authors stated that overall these 25 items held good internal consistency and were retained for the final version of the scale. (These 25 items with their item-total correlations are reproduced in Appendix "A.") A split-half reliability analysis resulted in a correlation of .83.

An examination of the Cowen AD Scale revealed that only three items were related to the capabilities of deaf people:

1. One item stated that deaf people can be born leaders.

2. One stated that deaf children possess less intelligence than hearing children.

3. One item suggested that a hearing person should have low expectations for a deaf person.

Cowen et al. (1967) also found that this scale correlated positively and significantly with the Anti-Negro, Anti-Minority, and Authoritarian scales, developed by Adorno, Frenkel-Brunswik, Levinson, and Sanford, suggesting that those individuals who are biased toward deaf people tend to be authoritarian in nature and also hold biases toward ethnic groups (cited in Cowen, Rockway et al, 1967). As further means of validating this scale, subjects who scored high and subjects who scored low on the AD Scale were subjected to a behavioral simulation. Each subject interviewed a deaf and a hearing person. After the interviews, each subject evaluated the personality of the deaf and hearing person. Those subjects scoring low on the AD (reflecting positive attitude) did not show differential evaluation, while those who had high AD scores rated the deaf person's personality lower than the hearing person's.

One other instrument was developed by Decaro (1981) to assess British teachers' and parents' opinions about the occupations that are appropriate for deaf adults. The author claimed that in order to improve hearing people's attitudes about the vocational capabilities of deaf people, such attitudes must first be assessed (Decaro, 1979, cited in Decaro, 1981). The author further stated that the attitudes of parents and teachers of a deaf child influence the child's beliefs about future career options.

In order to develop a scale that could measure attitudes about deaf vocational options, 14 job titles were selected that were representative of blue- and white-collar occupations. They were as follows:

1. Farmworker
2. Jeweller
3. Bookkeeper
4. Construction Worker
5. Lathe Operator
6. Manager
7. Foundry Worker
8. Miner
9. Doctor
10. Architect
11. Shop Assistant
12. Cook
13. Draughtsman
14. Lorry Driver

For each job title, there were two items: one involving a deaf person and the other, a hearing person. The following are samples of each type:

1. I would advise a deaf person with the right kind of qualifications . . . to train to be a doctor.

2. I would advise a hearing person with the right kind of qualifications . . . to train to be a bookkeeper (Decaro, 1981, p. 23).

Teachers (n = 25) and parents (n = 31) of students at the Northern Counties School for the Deaf in England completed the 28-item questionnaire. For test-retest reliability, all subjects were asked to complete the questionnaire a second time. Only 16 teachers and 17 parents completed the second administration. Means, standard deviations, and test scores were not reported by the author. The reliability information was included, however. A test-retest reliability for deaf items was .63, while the hearing items resulted in a coefficient of .67. For the teachers, data analysis revealed internal consistency coefficients of .85, .62, and .82 for the hearing items, deaf items, and total scale respectively. The parents' scores resulted in coefficients of .88, .67, and .84, respectively. The author offered no explanation for the lower test-retest stability of the deaf-related items, other than to explain that only 20% to 30% of the subjects changed their responses on deaf items more than one anchor point in either direction for the retest.

This instrument was designed because the author was concerned that deaf children were advised by parents and teachers to pursue blue-collar careers. The tool was measuring a hearing person's misconception that deaf adults are suitable for blue-collar, rather than white-collar occupations. Although the author claimed that this scale reliably measured parents' and teachers' attitudes toward the vocational capabilities of deaf individuals, attitude scores were not reported in this study. Therefore, it is unknown whether the subjects held positive, negative, or neutral attitudes.

One unpublished study described an instrument that was designed to assess a hearing person's knowledge of deafness (Department of Health Services, 1993). This pretest, designed to be given before a deaf awareness workshop, contained 13 true-false and multiple-choice items. (A reproduction of this instrument is included as Appendix "B.") Although many of the items look at general misconceptions about deaf people, it is of interest to note that six questions are directly related to capabilities:

1. There is one item that asks whether deaf people can drive.

2. One items asks whether deaf people have normal, below-average, or above-average IQ's.

3. One true-false item contains a statement that deaf people must be taken care of by hearing people.

4. Another true-false statement claims that deaf people can't talk.

5. A true-false item states that deaf people don't hear anything.

6. A true-false item claims that deaf people are a high-risk for insurance. (It might be assumed that many people would frame this in terms of car insurance and driving ability.)

Summary. After reviewing the above literature, it may be concluded that development of scales measuring attitude on deafness has been limited. The literature has also shown that deaf people possess equal intelligence and capabilities as hearing people, but misconceptions are still commonly held by many hearing people who have limited contact with deaf people. The following misconceptions were described in the above literature review:

1. Deaf people can't drive.

2. Deaf people are less intelligent than hearing people.

3. Deaf people don't have leadership qualities.

4. Deaf people are only capable of performing blue-collar jobs.

5. Deaf people have to be taken care of by hearing people.

6. Deaf people can't talk.

Open-ended and Critical Incidents Questions

In order to add to the above list of misconceptions about deaf adult's abilities, deaf professionals and deaf people were interviewed with a series of open-ended critical incident questions. Initially two questionnaires were created. One for hearing people working in the field of deafness and the other for deaf people. Each form had 19 questions (plus a few background questions). The hearing form is included as Appendix "C," while the deaf form can be found in Appendix "D." A few individuals receiving the initial questionnaire determined that it was too lengthy. Ten shortened forms were developed; five for hearing people and five for deaf people. Each shortened questionnaire contained 8 questions from the original 19-question pool, and each one had different questions. Deaf professionals (both hearing and deaf) and deaf people were administered the questionnaires through personal interview. (Some interviews were

conducted in person, while others were conducted by telephone.) In some cases the questionnaire was left for them to fill out and return.

Compiling a List of Misconceptions

Compilation. All of the misconceptions described by the experts and mentioned in the literature were recorded on one master list. There were many duplicate items that were eliminated. Similar items were combined. The final list contained 35 items.

Categories. All items could be fit into two categories: Intelligence and Skills. Only two items fit into the Intelligence category, while the remaining 32 fit into the Skills category. The Skills category naturally broke down into five subcategories:

1. Dealing with traffic

2. Job-related skills

3. Independent living skills

4. Communication skills

5. Academic skills

Settings. Further analysis was conducted to determine the settings involved in these misconceptions. The following settings were listed:

1. School

2. Job

3. Public establishments (e.g., restaurants and stores)

4. Public roads

5. Home

Matching settings with categories. Except for the Communication skills category, which was not setting specific, all other categories matched with specific settings as follows:

	Skills Category	Setting
1.	Dealing with traffic	Public roads
2.	Job-related skills	Job setting
3.	Independent living skills	Home setting and Public establishments
4.	Communication skills	No specific setting
5.	Academic skills	school setting

List of misconceptions. What follows is the compiled list of misconceptions by category and setting:

Intelligence

1. Deaf people are less intelligent than hearing people.

2. Smarter deaf people have better speech than those deaf people who are less intelligent.

Skills

Dealing with Traffic (Public Roads)

3. Deaf people can't drive.

4. A deaf person should not ride a bicycle on a busy street because they might not hear a horn from a car.

Job-related Skills (Job Setting)

5. A deaf person can't hold a leadership position.

6. Deaf people can't serve in the military because they can't fight.

7. Deaf people can't work in jobs that have safety risks, such as construction or assembly work, because they can't hear verbal warnings and/or alarms that signal danger.

8. Deaf people can't be promoted to management positions.

9. Deaf people can't have office jobs because they cannot talk on the telephone.

10. Deaf people are only suited for blue-collar jobs.

11. Deaf people should only work in jobs where they don't need to communicate with anyone.

12. It is nearly impossible to train a deaf person to perform a skilled job.

13. If a boss has a problem with a deaf employee, s/he should talk with the interpreter in private.

14. Deaf people don't work. They will always be on government assistance.

Independent Living Skills
(Home Setting and Public Establishments)

15. A deaf person would need assistance during an emergency situation, such as an earthquake.

16. Deaf people can't live on their own.

17. A deaf person can't take care of a baby because they can't hear the baby crying.

18. A deaf person could not go to a restaurant without a hearing person, because s/he could not order food without assistance.

19. A deaf person doesn't know when someone is at their front door because they can't hear a knock.

20. A deaf person doesn't know when someone is trying to call them on the phone because they can't hear the phone.

21. Deaf people can't make important decisions.

22. A deaf person needs a hearing person to wake them up in the morning because they can't hear the alarm clock.

23. Deaf people are very naive about sex.

24. Deaf people can't go shopping because they can't communicate with the check-out clerk.

Communication Skills

25. Deaf people can't talk.

26. Deaf people can't hear anything.

27. Sign language is not really a language. Only simple thoughts can be communicated.

28. Deaf people can't communicate with their hearing children.

29. Deaf people can't communicate with hearing people without an interpreter.

30. An interpreter should speak up if the deaf person doesn't understand the hearing person.

Academic Skills (School Setting)

31. A deaf person could not complete a graduate program.

32. Deaf students can't keep up with the hearing students in school.

33. In a classroom, a deaf person needs the interpreter to speak for them.

34. Deaf people can't read.

35. Deaf people can't write.

Description of the Construct

Based upon the literature review, expert opinion, and the final list with its categories and settings, the following definition of the construct to be measured in this study was developed:

General definition. The construct is a hearing adult's belief in the capabilities of deaf adults. It is assumed that these capabilities are determined by comparing deaf people's capabilities to hearing people's capabilities. The best way to define this construct is to describe two extreme types of hearing individuals: one who believes that deaf people are equally as capable as hearing people and one who believes that deaf people are less capable than hearing people. (It is realized that many people do not fall in either extreme and may believe that deaf people are capable in some areas, while not in others.)

Equal capability belief. A hearing adult who believes that deaf adults have equal capabilities believes that deaf people possess the same intelligence and skill level as hearing people, with the exception of the ability to process verbal language and hear. A hearing person who believes in equal capabilities would be aware that there are many low-functioning deaf people who possess low intelligence and abilities, while there are also many low-functioning hearing people in the same situation. More specifically, the hearing person who believes in equal capabilities holds the following opinions:

1. Deaf people possess the same normal distribution of intelligence as hearing people.

2. Most deaf people are able to: (a) take care of themselves and live independently; (b) gain and maintain employment in either blue- or white-collar occupations, depending on their qualifications; (c) drive safely on public roads; (d) perform academically on a comparable level with their hearing peers; and (e) find ways to communicate with hearing people, even when an interpreter is not present.

Unequal capability belief. A hearing adult who believes that deaf adults have less capability than hearing people believes that deaf people possess lower intelligence and skill level than hearing people. A hearing person with unequal capability beliefs is unaware that there are ranges of deaf people from low functioning to genius. All deaf people are lumped into one category. More specifically, the hearing person who believes in unequal capabilities holds the following opinions:

1. Deaf people possess a narrower and lower range of intelligence than that of the hearing population.

2. Deaf people are unable to: (a) take care of themselves and live independently, (b) work in white-collar jobs (c) drive safely, (d) perform academically on a comparable level with their hearing peers; and (e) communicate with hearing people unless an interpreter is present.

Subfactors. It appears that there are two subfactors in this construct: (a) belief in intelligence level and (b) belief in skills level. The latter encompasses most of the construct.

ITEM SPECIFICATIONS

Proportion of Items per Category

Before writing the item specifications and scale blueprint, it was important to re-examine the list of misconceptions (the domain) that was included in the above section. It should be noted that some categories or sub-categories contained more items than others. (For example, Academic Skills had 5 misconceptions, while Job-related skills had 10.) Therefore, it would be inappropriate to design a scale that had an equal number of items from each category. Listed below are the categories or sub-categories and the frequency and percent of items from the total list of misconceptions found in each.

	Category or Sub-category	Frequency	Percent
1.	Intelligence	2	6
2.	Skills		
	a. Dealing with traffic	2	6
	b. Job-related skills	10	28.5
	c. Independent living skills	10	28.5
	d. Communication skills	6	17
	e. Academic skills	5	14

Contexts and Age Groups

Age groups. As mentioned before, this instrument will be limited to assessing beliefs about the capabilities of (non-elderly) deaf adults. For this reason, a variety of age groups will not be described in the items.

Settings. As the settings are tied directly to the categories, a variety of settings will be covered with the variety of categories.

Contexts. In order to ensure that a variety of contexts are included in the blueprint, further breakdown was made of the categories and subcategories into contexts. The following is a list of categories, subcategories, and contexts. Also included are the item numbers corresponding to items from the list of misconceptions that fit into each category, subcategory, or context.

Category or Subcategory	Context	Items #'s	% of Category
Intelligence	IQ	1	50
	Speech	2	50
Skills Dealing with traffic	Driving	3	50
	Bike riding	4	50

Job skills	Emergencies	7	10
	Job status	8,10,14	30
	Skills	5,6,9,11,12	50
	Interpreter dependency	13	10
Independent living	Independence	15,16,21	30
	Marriage & family	17,23	20
	Business contacts	18,24	20
	Adaptive devices	19,20,22	30
Communication skills	Oral/Aural skills	25,26	33
	ASL	27	17
	Communication w/hearing	28,29,30	50
Academic skills	Competition	31,32	40
	Skills	34,35	40
	Interpreter dependency	33	20

Scale Blueprint

The blueprint for the final 20-item scale was designed so that the proportions of items in each category of the original 35-item list will remain roughly the same on the final scale. All of the calculations employed to translate these proportions into the required numbers of items for the final scale are not included in this description. The following example will provide insight as to how the number of items for each category for the final scale was calculated:

1. Of the 35 items on the original item list, 10 items were in the job skills category. This was approximately 28.5% of the items on the original 35-item list.

2. To determine the number of items needed for the job skills category on the 20-item scale, .285 (the proportion of job skills items in the original list) was multiplied by 20 (the number of items specified for the 20-item scale). The product was 5.7. This indicated that from five to six items in the job skills category would be needed for the 20-item scale in order to maintain the same proportion of job skills items that appeared on the original 35-item list.

In this blueprint, the numbers of items required will be designated by ranges to ensure flexibility. In some case, 0 will be on the bottom of a range. This method of using ranges, in lieu of exact numbers for each category, is similar to the blueprint method employed by Educational Testing Service for the Graduate Records Examination (Conrad, Trismen, & Miller, Eds., 1977). To balance out the number of negative and positive statements on the final scale, the specified numbers or number ranges for negative and positive statements are included for each category.

Category or Subcategory	Context	No. of Items	No. pos.	No. neg.
Intelligence		1	0-1	0-1
	IQ	0-1		
	Speech	0-1		
Dealing with traffic		1	0-1	0-1
	Driving	0-1		
	Bike Riding	0-1		
Job skills		5-6	2-3	2-3
	Emergencies	0-1		
	Job status	1-2		
	Skills	2-3		
	Interpreter dependency	0-1		

Category or Subcategory	Context	No. of Items	No. pos.	No. neg.
Independent living		5-6	2-3	2-3
	Independence	1-2		
	Marriage & family	1-2		
	Business contacts	1-2		
	Adaptive devices	1-2		
Communication skills		4	2	2
	Oral/Aural skills	1-2		
	ASL	0-1		
	Communication w/hearing	1-2		
Academic skills		3	1-2	1-2
	Competition	1-2		
	Skills	1-2		
	Interpreter dependency	0-1		

CONSTRUCTING THE ITEM POOL

Item Format

The final instrument will consist of 20 statements with a four-point Likert scale. There will be four anchors: Strongly disagree, mildly disagree, mildly agree, and strongly agree. There will be no neutral point.

Feasibility of this Format

The choice of this scale with its lack of neutral point was selected for the following reasons:

1. These authors do not believe that individuals have no opinion about the capabilities of deaf adults.

2. This is a scale to measure individual differences, and a spread of scores is desired. If there is a neutral point, it is feared that some individuals will rest on this center to avoid commenting on what might be considered an uncomfortable subject. This could limit the spread of scores.

3. Cowen's Attitude on Deafness Scale (Cowen et al., 1967), is highly regarded in its field. It has appeared in several studies published in the American Annals of the Deaf. The Cowen scale does not have a neutral point. Although not specifically stated in the Cowen studies, the widespread use of this scale could imply that many deaf professionals agree that there is no neutral attitude toward deaf people.

4. To verify the above assumption, pilot subjects will be questioned to determine whether they were bothered by the lack of neutrality on this scale.

The Item Pool

Item pool blueprint. For the item pool, the authors decided to write one statement for each of the 35 misconceptions on the original list (domain). The following is a blueprint for the item pool:

Category or Subcategory	Context	No. of Items	No. pos.	No. neg.
Intelligence		2	1	1
	IQ	1	1	0
	Speech	1	0	1

Category or Subcategory	Context	No. of Items	No. pos.	No. neg.
Dealing with traffic		2	1	1
	Driving	1	1	0
	Bike Riding	1	0	1
Job skills		10	5	5
	Emergencies	1	0	1
	Job status	3	2	1
	Skills	5	3	2
	Interpreter dependency	1	0	1
Independent living		10	6	4
	Independence	3	2	1
	Marriage & family	2	1	1
	Business contacts	2	1	1
	Adaptive devices	3	2	1
Communication skills		6	3	3
	Oral/Aural skills	2	1	1
	ASL	1	0	1
	Communication w/hearing	3	2	1

Category or Subcategory	Context	No. of Items	No. pos.	No. neg.
Academic skills		5	2	3
	Competition	2	1	1
	Skills	2	1	1
	Interpreter dependency	1	0	1

Concerns. There was some concern that if the items were too direct and transparent, the subjects might figure out that all of these items reflect deaf capabilities. In order to appear socially desirable, the subjects might answer in a manner that would indicate that deaf people are as capable as hearing people. In other words, the subjects might disagree with all of the negative items and agree with all of the positive items. For this reason, subtlety will be attempted in the composition of items.

Structure for item pool. Initially the items will be written in the order of category, subcategory, and context. This will be done to ensure adherence to the item pool blueprint. The actual scale given to the subjects for the pilot will have the questions in some kind of random order to avoid presenting obvious patterns.

Item pool. Below are the questions written for the item pool. After each question is an indication of a negative or positive statement. Although a few items are identical to the items on the list of misconceptions, most have been rewritten.

Intelligence

1. Deaf people are as intelligent as hearing people. (+)

2. Smarter deaf people have better speech than deaf people who are less intelligent. (-)

Skills

Dealing with Traffic (Public Roads)

3. Deaf people are safe drivers. (+)

4. It is dangerous for a deaf person to ride a bike on a main street. (-)

Job-related Skills (Job Setting)

5. A deaf person can have the leadership abilities needed to run an organization. (+)

6. Deaf people should not be allowed to serve in the military. (-)

7. It is dangerous for deaf people to work in a factory because they can't hear someone shout if something is about to fall. (-)

8. Some deaf people should be promoted to management positions. (+)

9. Just because a deaf person can't talk on the phone, doesn't mean he or she should be prevented from working in an office. (+)

10. It is unfair to limit a deaf person to a low-paying, unskilled job. (+)

11. Deaf people should only work in jobs where they don't need to communicate with anyone. (-)

12. Deaf people can be trained to perform highly skilled jobs. (+)

13. If a boss has a problem with a deaf employee, the best thing to do is to talk with the interpreter in private. (-)

14. Deaf people cost tax payers lots of money because they can't keep their jobs. (-)

Independent Living Skills
(Home Setting and Public Establishments)

15. If there was a fire, a deaf person could get out of a building safely without help. (+)

16. An 18-year-old deaf adult can live alone and take care of him- or herself. (+)

17. It is a mistake to leave a baby alone with a deaf person, because they can't hear the baby cry. (-)

18. A deaf person could not go to a restaurant without a hearing person, because they could not order food without assistance. (-)

19. It can be frustrating to pay a visit to deaf people because they can't hear you knock at the front door. (-)

20. A deaf person will know when his or her phone is ringing. (+)

21. Deaf adults must depend on their parents to make important decisions. (-)

22. A deaf person can wake up early in the morning without help from a hearing person. (+)

23. Deaf adults know as much about sex as hearing adults. (+)

24. Deaf people do not have difficulty shopping by themselves. (+)

Communication Skills

25. It is not unusual to hear a deaf person talk. (+)

26. The worst thing about being deaf is that you can't hear a thing. (-)

27. Signing is not really a language. Only simple thoughts can be communicated. (-)

28. Deaf adults are able to communicate with their hearing children. (+)

29. If an interpreter is not around, a deaf person can still find a way to communicate with a hearing person. (+)

30. It is the responsibility of the interpreter to speak up if the deaf person doesn't understand the hearing person. (-)

Academic Skills (School Setting)

31. A deaf person could get a Ph.D. or a Masters degree. (+)

32. It is nearly impossible for a deaf person to keep up with a hearing person in school. (-)

33. If a deaf student is having a problem in school, the interpreter should speak privately with the teacher. (-)

34. Deaf people do poorly in school because they can't read. (-)

35. A deaf person can be an excellent writer. (+)

Pilot version. The above item pool was written to allow for comparison with the item pool blueprint. The pilot version needed to have randomized items. The order of the items was selected through the use of a random number table. A Likert scale and instructions were also written for the pilot version that is included on the following pages:

No. _____

Your Opinions about Deaf People (35-Item Version)

We are asking for your opinions about deaf people who use sign language. We are not talking about people who have a mild hearing loss or those deaf people who do not sign.

To indicate your opinion, please circle:

A If you strongly agree
B If you mildly agree
C If you mildly disagree
D If you strongly disagree

Please complete all items. There are no right or wrong answers.

		Agree		Disagree	
1.	Deaf people should not be allowed to serve in the military.	A	B	C	D
2.	It is not unusual to hear a deaf person talk.	A	B	C	D
3.	Deaf people do poorly in school because they can't read.	A	B	C	D
4.	If a deaf student is having a problem in school, the interpreter should speak privately with the teacher.	A	B	C	D
5.	Just because a deaf person can't talk on the phone, doesn't mean he or she should be prevented from working in an office.	A	B	C	D
6.	It is dangerous for deaf people to work in a factory because they can't hear someone shout if something is about to fall.	A	B	C	D
7.	Smarter deaf people have better speech than deaf people who are less intelligent.	A	B	C	D
8.	Deaf people are safe drivers.	A	B	C	D

		Agree		Disagree	
9.	A deaf person can have the leadership abilities needed to run an organization.	A	B	C	D
10.	It is unfair to limit a deaf person to a low-paying, unskilled job.	A	B	C	D
11.	A deaf person could get a Ph.D. or a Masters degree.	A	B	C	D
12.	If a boss has a problem with a deaf employee, the best thing to do is to talk with the interpreter in private.	A	B	C	D
13.	Some deaf people should be promoted to management positions.	A	B	C	D
14.	It is dangerous for a deaf person to ride a bike on a main street.	A	B	C	D
15.	An 18-year-old deaf adult can live alone and take care of him- or herself.	A	B	C	D
16.	It is nearly impossible for a deaf person to keep up with a hearing person in school.	A	B	C	D
17.	It can be frustrating to pay a visit to deaf people because they can't hear you knock at the front door.	A	B	C	D
18.	Deaf adults know as much about sex as hearing adults.	A	B	C	D
19.	Deaf people cost tax payers lots of money because they can't keep their jobs.	A	B	C	D
20.	Deaf people do not have difficulty shopping by themselves.	A	B	C	D
21.	The worst thing about being deaf is that you can't hear a thing.	A	B	C	D
22.	If an interpreter is not around, a deaf person can still find a way to communicate with a hearing person.	A	B	C	D

		Agree		Disagree	
23.	It is the responsibility of the interpreter to speak up if the deaf person doesn't understand the hearing person.	A	B	C	D
24.	Deaf people should only work in jobs where they don't need to communicate with anyone.	A	B	C	D
25.	Deaf people can be trained to perform highly skilled jobs.	A	B	C	D
26.	A deaf person can wake up early in the morning without help from a hearing person.	A	B	C	D
27.	It is a mistake to leave a baby alone with a deaf person, because they can't hear the baby cry.	A	B	C	D
28.	A deaf person will know when his or her phone is ringing.	A	B	C	D
29.	Deaf adults must depend on their parents to make important decisions.	A	B	C	D
30.	Signing is not really a language. Only simple thoughts can be communicated.	A	B	C	D
31.	A deaf person could not go to a restaurant without a hearing person, because they could not order food without assistance.	A	B	C	D
32.	A deaf person can be an excellent writer.	A	B	C	D
33.	Deaf people are as intelligent as hearing people.	A	B	C	D
34.	If there was a fire, a deaf person could get out of a building safely without help.	A	B	C	D
35.	Deaf adults are able to communicate with their hearing children.	A	B	C	D

Demographics

When the scale was administered, some demographics were collected on a separate sheet of paper. The background questionnaire designed for this purpose is included on the next page:

No. _____

Background Information

Please answer the following questions:

1. Age: _____

2. Sex: _____

3. Class level: (Circle one) Fresh Soph Jr. Sr. Masters Doctoral Not in School

4. Highest Degree: (Circle one) High School A.A. Bachelors Masters Doctoral

5. Please check the item or items below that indicate your past experience with deaf people who use sign language. (You can check more than one item.)

___ I have never met a deaf person.

___ I have met a deaf person before.

___ I have worked with a deaf person.

___ I have been in a class with a deaf person.

___ I have deaf friends.

___ I have a deaf family member or relative.

6. Please check the item or items below that indicate your past experience with sign language. (You can check more than one item.)

___ I cannot fingerspell or use sign language

___ I can fingerspell a little bit

___ I know a few signs

____ I have fair signing skills

___ I am a skilled signer

Cowen's Scale

In order to perform a construct validity analysis, each subject was also administered Cowen's Attitude to Deafness scale. This scale is included on the following pages:

No. _____

Cowen's Attitude to Deafness Scale

Please indicate your opinion by drawing a circle around:

A if you strongly agree
B if you mildly agree
C if you mildly disagree
D if you strongly disagree

Please note that there are no right or wrong answers. Make sure to answer all questions.

		Agree		Disagree	
1.	The deaf generally have a less mature personality than the hearing.	A	B	C	D
2.	In general, deaf people are more neurotic than those who are hearing.	A	B	C	D
3.	It is impossible to really get "close" to a deaf person.	A	B	C	D
4.	Deaf people somehow seem sadder and more wrapped up in themselves than hearing people.	A	B	C	D
5.	The deaf do not seem to be bothered by ordinary life events any more than hearing people.	A	B	C	D
6.	Because of his/her need to be pitied, it is particularly important that the deaf person have someone very tolerant to whom he/she can talk.	A	B	C	D
7.	Deaf people also seem to have more than the usual number of other physical complaints.	A	B	C	D
8.	Deaf people show personality characteristics which frequently make them seem odd.	A	B	C	D
9.	A person who is deaf is as apt to be a born leader as anyone else.	A	B	C	D

		Agree		Disagree	
10.	Deaf people seem to be overly polite and to lack spontaneity.	A	B	C	D
11.	Most deaf people feel that they are worthless.	A	B	C	D
12.	Most deaf people are dissatisfied with themselves.	A	B	C	D
13.	The deaf have as many interests as the hearing have.	A	B	C	D
14.	The deaf adult is not quite as mature or "grown-up" as the hearing adult.	A	B	C	D
15.	It's difficult to understand the deaf because they keep so much to themselves.	A	B	C	D
16.	It must be bitterly degrading for a deaf person to depend so much on others.	A	B	C	D
17.	On the whole, deaf children seem to be less intelligent than hearing children.	A	B	C	D
18.	I feel that deafness is as hard to bear as complete paralysis.	A	B	C	D
19.	A deaf person can't afford to talk back to people.	A	B	C	D
20.	You should not expect too much from a deaf person.	A	B	C	D
21.	A deaf person is constantly worried about what might happen to him/her.	A	B	C	D
22.	A deaf person is not afraid to express his/her feelings.	A	B	C	D
23.	Deaf people are more easily upset than people who can hear.	A	B	C	D
24.	The deaf are prone to have more fears about the world than the hearing.	A	B	C	D
25.	The deaf are usually on their guard with people.	A	B	C	D

Permission to reprint this scale has been granted by E. L. Cowen.

PRE-PILOT REVISIONS

Solicitation of Expert Opinion

Review process. Prior to piloting, the 35-item pilot scale was distributed to deaf professionals, as well as individuals with expertise in scale construction. A package was produced that included the 35-item pilot scale, the 20-item scale blueprint, and a cover letter. The following is a reproduction of the information in the cover letter:

*****

Could you please evaluate this scale for the following:

1. Accuracy
2. Relevance to item and test specs
3. Item construction flaws
4. Grammar
5. Bias
6. Readability

Feel free to mark on this copy or write your suggestions on a separate page.

Thanks for your assistance.

Paul Berkay

****

Individuals receiving the review package included (a) two University of Oklahoma Educational Psychology faculty members, (b) a faculty member of a deaf program in Special Education at another university, (c) the research director of a deaf mental health program connected with a university, and (d) six graduate students currently enrolled in a Measurement course.

Feedback. The expert reviewers wrote several comments on the review packages. This authors met with each expert and discussed the comments. This provided further clarification of their feedback. Some of the following suggestions were made:

1. For three items, language should be added to make it clear that deaf people should be compared to hearing people.

2. One item was confusing.

3. There were two items that used nouns and pronouns that did not agree.

4. One item had a double negative statement.

5. One item had two sentences that needed to be combined into one.

6. Three items had wording that made the statements too absolute or extreme. For example, the word "should" was used when "could" might have been a better choice.

7. In one item, the phrase "a deaf person" might be changed to its plural "deaf people" in order to make the question more general.

Think Aloud

The process. In order to generate further feedback, a think aloud was conducted using an undergraduate student. The 35-item pilot scale presented to the expert reviewers was administered to this subject. The subject was asked to complete the scale and to read the items out loud during the process. He was also requested to say all of his thoughts out loud. One of the authors (Berkay) recorded significant comments on paper during the think aloud.

Results. As a result of the think aloud, the authors were able to determine that a few items were confusing, but in some cases the subject used thought processes that were similar to those expected by the authors. Some of the following issues were brought to the authors' attention as a result of the think aloud:

1. The subject stated that the items were "testing someone's ignorance."

2. Some items needed to be qualified with the statement, "In comparison to hearing people . . ."

3. The subject reacted strongly to some of the stronger items that reflect a deaf person's total inability to hear, talk, or read. In reaction to these items he stated, "I have heard a deaf person talk," and, "Deaf people can read."

Revision of the Scale

After conducting expert review and the think aloud, the authors made the following revisions. (Note: All changes are underscored.)

ITEM NO.

2.

Old: It is not unusual to hear a deaf person talk.

New: Some deaf people can talk.

(This was revised to remove the double negative.)

*****

8.

Old: Deaf people are safe drivers.

New: Deaf people drive just as safely as hearing people.

(Comparison to hearing people was added.)

****

10.

Old: It is unfair to limit a deaf person to a low-paying, unskilled job.

New: It is unfair to limit deaf people to low-paying, unskilled jobs.

(This question needed to be made more general. There are some low-functioning deaf people who are limited to these types of positions.)

*****

12.

Old: If a boss has a problem with a deaf employee, the best thing to do is to talk with the interpreter in private.

New: If a boss has a problem with a deaf employee, the boss should talk with the interpreter, rather than the deaf person.

(The original question was said to be confusing by more than one reviewer. The new version seemed to be clearer.)

*****

13.

Old: Some deaf people should be promoted to management positions.

New: A deaf person could be promoted to a management position.

(The "could" made this item less absolute. The change to singular makes it less general. The subject needs to think more in terms of specific, qualified individuals.)

*****

14.

Old: It is dangerous for a deaf person to ride a bike on a main street.

New: It is more dangerous for a deaf person than it is for a hearing person to ride a bike on a main street.

(This comparative information was needed.)

****

15.

Old: An 18-year-old deaf adult can live alone and take care of him- or herself.

New: An 18-year-old deaf adult is capable of living alone and taking care of him- or herself.

(The new version is worded better than the old one.)

*****

21.

Old: The worst thing about being deaf is that you can't hear a thing.

New: One of the worst things about being deaf is that you can't hear a thing.

(The new version is less extreme than the old one. There was concern that the old question forced the subject to determine the worst thing about being deaf.)

*****

22.

Old: If an interpreter is not around, a deaf person can still find a way to communicate with a hearing person.

New: If an interpreter is not around, a deaf person can usually find a way to communicate with a hearing person.

(The old version was too absolute. It suggested that a deaf person could always communicate with a hearing person without an interpreter. Occasionally this is not true.)

*****

27.

Old: It is a mistake to leave a baby alone with a deaf person, because they can't hear the baby cry.

New: It is a mistake to leave a baby alone with a deaf person, because he/she can't hear the baby cry.

(The subject noun and pronoun needed to agree.)

*****

30.

Old: Signing is not really a language. Only simple thoughts can be communicated.

New: Signing is not really a language because only simple thoughts can be communicated.

(This needed to be changed into a single statement.)

*****

31.

Old: A deaf person could not go to a restaurant without a hearing person, because they could not order food without assistance.

New: A deaf person could not go to a restaurant without a hearing person because <u>he/she</u> could not order food without assistance.

(The subject noun and pronoun needed to agree.)

*****

34.

Old: If there was a fire, a deaf person could get out of a building safely without help.

New: If there was a fire, a deaf person could get out of a building safely without help <u>just as easily as a hearing person could</u>.

(Comparative information needed to be added to this item.)

*****

It should be noted that even though subjects might not be naive enough to believe that deaf people can't read, talk, or hear (anything), the items reflecting these extreme misconceptions were kept in the pilot test. As these beliefs were discovered in the literature, they would still be examined in the early stages of this scale's development. It might be possible that most subjects know that deaf people aren't totally disabled in these areas. This might be a result of information provided by the current media. For example, deaf actress Marlee Matlin appears in a regular television series and talks, hears (to some degree), and reads. Some of the misconceptions about these abilities are documented in old literature dating back to the 60's, and some of them may no longer be true.

All of the above revisions were incorporated into the 35-item pilot scale <u>before</u> the first administration was conducted. (This revised scale is not reproduced in this document.)

ITEM TRYOUTS - FIRST ADMINISTRATION

Method

The Setting

The revised 35-item Opinions about Deaf People scale was piloted on March 1, and 4, 1993, in a computer lab in the Education building at the University of Oklahoma. Cowen's Attitude on Deafness Scale (Cowen et al., 1967) was administered following the authors' scale for the purposes of establishing construct validity. The background sheet previously described in this study was also completed by each subject.

The Sample

All subjects were currently enrolled in an undergraduate Media course that was required for a primary/secondary Teacher Education program. Students were required to participate as subjects in two research projects for part of their semester grade, but were not specifically required to participate in this study.

A total of 38 students (10 males and 28 females, ages 19-48) agreed to participate in this pilot study. Demographics were reported on the background information sheet completed by each subject and are included in Appendix "E." The majority of the subjects were college seniors (61%) with high school diplomas as their highest degree (66%). It may be of interest to note that only a few of the subjects had deaf relatives or family members (8%). A larger portion of subjects, however, had experience with deaf classmates (37%) and/or deaf coworkers (16%). Very few subjects reported having never met a deaf person (8%). Although there was a disproportionate number of female subjects, this sample appeared to be representative of a typical upper-level Teacher Education program population. This sample's representativeness of a typical undergraduate population may be in question.

The Procedure

Group or individual administration. The scales were administered either individually or in large or small groups, depending on the number of subjects present at any given time. As there was limited seating in the testing room, the author (Berkay) attempted to process the subjects as they arrived. This prevented discomfort from crowded conditions that may have resulted if all of the subjects had completed the scale at the same time.

Consent form. In compliance with Human Subjects regulations, the authors had previously obtained exempt status for this pilot through the University's Office of Research Administration. A consent form was prepared for the signature of each subject. (See Appendix "F" for a reproduction). It might be noted that the form mentioned that the purpose of the study was to "examine opinions on deafness." This language was intentionally vague. The authors feared that a more explicit description of the study's purpose might have caused subjects to answer the questions in a manner that would not reveal any true biases held toward deaf people. This concern was mentioned to the administrator at the Office of Research Administration, and the non-explicit language in the consent formed was approved. The authors agreed to debrief the subjects at a meeting of the subjects' Media course on a date following the completion of the piloting process. In order to protect the subjects' anonymity, the consent form was not attached to the completed scale. Subjects did not write their names on any part of the scales or background sheets. Although each set of scales was identified by a number, this number was not recorded on the consent form. Scales and consent forms were placed into two separate piles.

Administration. Upon arrival at the testing room, each subject signed in and was given two copies of the consent form. They were instructed by the author (Berkay) to read one copy and sign and date both. One was to be kept for the subject's personal records, while the other was returned to the author. Upon collection of the consent form, each subject was given the two scales and the background sheet. They were instructed to complete each item. If there was more than one individual in the room, the subjects were asked not to discuss the items amongst each other. Upon completion of the scales and background sheet, each subject was asked a question about the lack of a neutral point on the scales. The author signed their lab manuals to substantiate participation in the study, and then subjects were excused.

Test taking behavior. The subjects in this pilot appeared to take this study seriously. There was no talking or discussion of items among subjects during the pilot session.

Lack of neutral point. As was previously mentioned, the authors chose not to include a neutral or no-opinion point in the Likert scale. There was some concern that this might have bothered some of the subjects because they may have wanted to state that they held no opinion. Upon completion of the scale, each subject was privately asked the following question in the front of the room: "Were you bothered by the lack of a neutral or no-opinion point in any of the scales?" Four of the subjects were not asked this question because they left before the author (Berkay) could question them. Of those responding to this question (n = 34), 11

(32%) stated that they were bothered by the absence of a neutral point. The rest of the subjects were not concerned about this omission. Although a substantial number of subjects were bothered by the lack of a neutral point, the authors decided to maintain the four-point scale. This was motivated by concern that subjects would use a neutral point to avoid committing to an opinion on the sensitive topic of individuals with disabilities.

Data Collection

Scoring. Total scores for each subject were determined. For both the authors' and Cowen's scales, a high score reflected a negative attitude toward deaf people, while a low score was indicative of a positive attitude. The following points were assigned for positive statements: Strongly Agree-1, Mildly Agree-2, Mildly Disagree-3, Strongly Disagree-4. For the negative statements, the scale was reversed to assign the following points: Strongly Agree-4, Mildly Agree-3, Mildly Disagree-2, Strongly Disagree-1. The authors' 35-item scale would allow for a score range of 35 to 140. Cowen's 25-item scale could result in scores from 25 to 100.

Measures. Descriptive statistics were determined for the subjects' total scores on each scale. In addition, the data were analyzed for internal and item-total reliability. A factor analysis was also conducted. In order to develop a 20-item scale, 15 items would be discarded based on low item-total reliability, low factor correlation, and blueprint requirements.

Results

Descriptive Statistics

Total scores by subject. The total scores by subject for the authors' 35-item scale and Cowen's 25-item scale are included in Appendix "G." Also included are descriptive statistics for the total scores by subject for both scales. The mean total score for the authors' scale was 56.84 with a standard deviation of 11.94. The range was 37 to 86. Cowen's scale resulted in a mean total score of 38 and a standard deviation of 10.98. The range was 25 to 67.

Item frequencies. The frequencies of responses for each item in the authors' scale are described and included in Appendix "H." Most of the items solicited a varied range of responses. Exceptions were three positively stated items, 11, 32, 33, which elicited "Strongly Agree" responses from over 90% of the subjects.

Correlations and Reliability

Correlation matrix. Appendix "I" includes a correlation matrix for the authors' scale. Correlations among all items are shown.

Reliability. Included in Appendix "J" are reliability coefficients for the authors' scale. This administration resulted in a coefficient alpha of .90 and a split-half reliability of .86. Item-total reliability correlations can be found in Appendix "K." A table showing item-total correlations in ascending order (also in Appendix "K") reveals that the correlations ranged from .10 to .75. Only five items obtained item-total correlations lower than .30.

Factor Analysis

Data generated by the factor analysis is presented in Appendix "L." Although 10 factors were discovered, only 4 had Eigenvalues over 2.00. Factor 1 was the highest with an Eigenvalue of 10.64, accounting for 30% of the variance. Factors 2, 3, and 4 had Eigenvalues of 3.77, 3.09, and 2.09 respectively. An examination of the factor matrix reveals that the majority of the items correlate moderately to strongly with Factor 1. Only Items 2, 23, and 25 produced correlations of less than .30 with this factor. Of the 32 items that correlated over .30 with Factor 1, seven items correlated stronger with other factors. The table showing Factor 1 correlations in ascending order (also in Appendix "L") indicates the items that correlated stronger with other factors, as well as the items that had low item-total reliability.

Standard Error of Measurement

The standard error of measurement for the authors' 35-item scale was 3.78, indicating a 95% confidence interval of ±7.41.

SCALE REVISION

Interpretation of Data

The goal of the scale revision was to develop a reliable 20-item scale that adhered to the scale blueprint. One of the first steps in the revision process was to provide an interpretation of the data analysis of the 35-item pilot.

Descriptive Statistics

It appears that the range of scores was somewhat restricted. Few subjects responded with a "4" (the most negative response) on more than a few items. The mean value for the authors' 35-item scale was around 57. As the center score on this scale would be

70, this group of subjects collectively demonstrated attitudes leaning toward the positive end. A similar result was obtained from the Cowen scale, as the group mean of 38 was substantially lower than the 50-point center score. It would be expected that this group of subjects might not be representative of the general population, as their mean education level might be higher than that of the average American citizen. Individuals who have not completed high school are not represented in this sample, but are plentiful in the general population. It is also possible that individuals in a Teacher Education program have been exposed to the subject of deafness through classroom observation or enrollment in an Exceptional Children course. At any rate, there is not too much concern about this sample's tendency toward the positive end of the scale, as this type of result would be expected from an educated population with previous experience with deafness.

Reliability

The scores from the authors' scale have resulted in high reliability, both internally and on a item-total basis. Only five items had item-total correlations below .30.

Factor Analysis

Examination was made on the items that showed low correlations with Factor 1 or that correlated stronger with another factor. Six items correlated higher with Factor 2, and four items correlated higher with other factors. These items were examined for different themes. The following was suggested:

1. Three items related to Factor 2 (1, 6, and 14) involved perceived danger for a deaf person or others resulting from the deaf person's inability to hear. Perhaps individuals who think that deaf people are highly capable might still be concerned about putting them in situations that could be dangerous.

2. Two items related to Factor 2 (4 and 23) and one correlating with Factor 3 (22) were related to sign language interpreters. It is possible that those who believe that deaf people are highly capable do not understand the role and responsibilities of the interpreter. These items might measure ignorance in this area, rather than a negative attitude toward the capabilities of deaf people.

3. A final theme was connected with three items correlating strongly with three different factors. Although these may be related to three different constructs, it was of interest to note this theme. Items 21 (Factor 2), 3 (Factor 4), and 2 (Factor 5) were all related to beliefs in the total

inabilities to hear (anything), talk, or read. As was previously suspected, most people with both negative and positive attitudes toward the capabilities of deaf people have seen evidence that deaf people can talk, read, and hear (to some degree). This information was likely acquired through television, movies, and personal observation. These items do not appear to measure attitudes, but rather general knowledge about deafness.

Discarding Items

Low Reliability and Factor Correlations

Low item-total reliabilities, low correlations with Factor 1, stronger correlations with other factors, and the test blueprint requirements were all taken into consideration in determining the 15 items to be discarded from the scale. To assist in this process, the authors composed a table showing item-total correlations in ascending order. Added to that table were notations of the items that correlated stronger with other factors (see Appendix "M"). It was decided to eliminate the ten items that had item-total correlations of less than .40. All of these items also had less than .40 correlations with Factor 1. There were three remaining items that did not have item-total correlations below .40, but they correlated the strongest with factors other than Factor 1. These items were 6, 14, and 21, with item-total correlations of .48, .52, and .46 respectively. Although these items correlated strongly with the total scores, they were discarded because they may be associated with factors other than Factor 1. At this point 13 items were eliminated (see Appendix "M").

Blueprint Specifications

Before deciding on the two additional items to eliminate, it was necessary to determine how the 13-item deletion impacted the final blueprint. It was interesting to discover that the deletion of these items did not highly impact adherence to the final blueprint. Only a few adjustments needed to be made. Upon inspection of the blueprint, it was decided to eliminate Items 26 and 28 for the following reasons:

1. These items concerned adaptive devices and were included in the independent living category. Two items needed to be eliminated from the independent living category.

2. Both of these items had item-total correlations below .50 and Factor 1 correlations below .60 and were not among the highest correlations in both areas.

3. There was some concern on the part of the authors that these items may have been a little bit ambiguous and confusing.

4 As a matter of judgment, a third item related to adaptive devices (Item 17) was not eliminated. This item was judged to be less confusing than Items 26 and 28 and had a higher item-total correlation.

At this point 15 items had been deleted. Appendix "N" shows the item-total correlations in ascending order and indicates the items that correlated stronger with other factors and the 15 eliminated items.

It may of value at this time to show how the 20 remaining items adhered to the final blueprint specifications for number of items per category or subcategory. This is described in the table below. (Note: Areas failing to meet the original number specifications are indicated with an asterisk.)

Final Scale-to-Blueprint Match

For Number of Items per Category

Category or Subcategory	Context	Expected No. of Items	Obtained No. of Items
Intelligence		1	2*
	IQ	0-1	1
	Speech	0-1	1
Dealing with traffic		1	1
	Driving	0-1	1
	Bike Riding	0-1	0

* Indicates failure to adhere to blueprint specifications

Category or Subcategory	Context	Expected No. of Items	Obtained No. of Items
Job skills		5-6	6
	Emergencies	0-1	1
	Job status	1-2	3*
	Skills	2-3	2
	Interpreter dependency	0-1	1
Independent living		5-6	6
	Independence	1-2	3*
	Marriage & family	1-2	1
	Business contacts	1-2	1
	Adaptive devices	1-2	1
Communication skills		4	2*
	Oral/Aural skills	1-2	0*
	ASL	0-1	1
	Communication w/hearing	1-2	1

*Indicates failure to adhere to blueprint specifications

Category or Subcategory	Context	Expected No. of Items	Obtained No. of Items
Academic skills		3	3
	Competition	1-2	2
	Skills	1-2	1
	Interpreter dependency	0-1	0

*Indicates failure to adhere to blueprint specifications

Below is a separate table indicating the 20-item scale's adherence to the blueprint specifications for the number of negative and positive statements per category or subcategory. (Note: Areas failing to meet the original number specifications are indicated with asterisks.)

Final Scale-to-Blueprint Match

For Number of Positive and Negative Items per Category

Category or Subcategory	Expec. No. of Pos.	Expec. No. of Neg.	Obtain. No. of Pos.	Obtain. No. of Neg.
Intelligence	0-1	0-1	1	1
Dealing with traffic	0-1	0-1	1	0
Job skills	2-3	2-3	3	3
Independent living	2-3	2-3	2	4*
Communication skills	2	2	1*	1*
Academic skills	1-2	1-2	2	1
TOTALS	7-12	7-12	10	10

*Indicates failure to adhere to blueprint specifications

It appears that these 20 items adhere fairly well to the blueprint. There are a few exceptions:

1. Two items on Intelligence proved reliable and were retained for this scale. Only one was specified in the blueprint.

2. In each of two context areas (Job Status and Independence), one more item was used then specified. This did not impact the overall category limits.

3. The Communication Skills category was underrepresented on the final test. This was likely due to extreme statements about oral/aural skills included in the original 35-item pool that had to be eliminated. Although less severe statements could have been written, it might be possible that this context area is not a good one for this construct. This might be due to current television depiction of deaf individuals talking and hearing (to some degree). In light of this, items that suggest a deaf person's total inability to speak or hear might be rejected by many of those completing this scale.

4. The Communication Skills category was short one positive and one negative item. This was due to the loss of the oral/aural skills items.

5. There was one too many negative statements in the Independent Living category. This was not of major concern because there were exactly 10 positive and 10 negative items retained on the scale.

Data Analysis

Before deciding on the final 20-item version of this scale, it was important to subject the proposed 20-item test to data analysis in order to determine its reliability and factor clustering. To do this, the data for the 15 discarded items were eliminated from the data of the 38 pilot subjects, and a new data analysis was conducted. The new 20-item scale had a possible score range of 20 (most positive attitude) to 80 (most negative).

Descriptive statistics. The total scores by subject for the proposed 20-item scale are listed in Appendix "O" (together with the scores of the two other scales). Also included are descriptive statistics for the total scores by subject. The mean total score for this revised scale was 28.47 with a standard deviation of 7.38. The range was 20 to 50.

Reliability. Included in Appendix "P" are reliability coefficients for the revised scale. The deletion of 15 items resulted in a coefficient alpha of .91 and a split-half

reliability of .92. Item-total reliability correlations can be found in Appendix "Q." The correlations ranged from .35 to .76. Only two were lower than .40.

Factor analysis. Data generated by the factor analysis is presented in Appendix "R." Although four factors were discovered, only two had Eigenvalues over 2.00. Factor 1 was the highest with an Eigenvalue of 8.91, accounting for 45% of the variance, while Factor 2 had a 2.19 Eigenvalue. Although 3 items (12, 17, and 27) correlated much stronger with factors other than Factor 1, the Factor 1 correlations ranged from .38 to .84.

Standard error of measurement. The standard error of measurement for the revised scale was 2.26, and the 95% confidence interval is ±4.43.

Data Interpretation

Before making any final decision on whether to retain the proposed 20-item scale, the data analysis for the new scale was interpreted and compared to the data obtained on the 35-item scale.

Descriptive statistics. Similar to the 35-item scale, the range of scores for this new version appeared to be restricted. Subjects collectively gravitated toward the positive end of the scale with a mean of approximately 28. The middle score on this new scale would be 40.

Reliability. Although the internal reliability did not appear to improve, the same high correlation found in the 35-item scale was retained. The split-half reliability did appear to improve with the removal of the 15 items, however. The bottom of the range of item-total correlations also was increased. It appears that the reliability of the test was enhanced by revising this scale.

Factor analysis. The new factor analysis did produce a few minor concerns, as three items (12, 17, 27) appeared to correlate much stronger with factors other than Factor 1. Examination was made of these items to determine any themes. Of the three items not correlating the strongest with Factor 1, one was related to interpreters (Item 12), and two were related to adaptive devices (Items 17 and 27).[1] The themes of these three items are similar to the themes of the items that did not correlate highly with

[1]Although Item 27 (related to baby care) was not originally classified in the adaptive device category, an adaptive device component could be related to this item, as there are sensors available that allow deaf adults to monitor baby cries from another room.

Factor 1 in the 35-item analysis. As these three items still correlated strongly with Factor 1 in the new factor analysis (above .38), there might be two factors related to each of these items. It is possible that they measure both attitude toward the capabilities of deaf adults and knowledge of adaptive devices or support services (e.g., interpreters). It is difficult to separate these two measures, as lack of knowledge of adaptations and accommodations for deaf people can affect attitudes toward a deaf person. If a hearing person is unaware of adaptive devices and support services, he or she might believe that a deaf person is incapable of performing a task that is facilitated by such adaptations. Often times, deaf people are denied opportunities because a hearing employer or other authority figure fails to check out whether a deaf person is capable of performing a task with the assistance of an interpreter or adaptive device. At this point, these items will be retained, due to their moderately strong correlation with Factor 1. Further consideration of removal of these items may take place during a future revision of this scale.

Revised Scale

After careful review of the 20-item scale's data analysis, it was decided to retain the proposed 20 items for the final scale. The original scale instructions were not retained, however. The authors were concerned that these instructions might limit the scale's usefulness by causing subjects to consider only deaf people who sign. In order to broaden this scale to include consideration of deaf oralists (those who don't use sign language), the instructions were revised to exclude the limiting description of "deaf people who use sign language." These changed instructions excluded consideration of elderly individuals with late-in-life hearing loss, as these people might have physical impairments that could prevent ordinary functioning. The new scale and instructions have been revised as follows. (It should be noted that items have been renumbered, but that the remaining items have been retained in their original order.)

No. _____

Your Opinions about Deaf People (20-Item Version)

We are asking for your opinions about deaf people. We are not talking about people who have a mild hearing loss or elderly people who have lost their hearing late in life.

To indicate your opinion, please circle:

A If you strongly agree
B If you mildly agree
C If you mildly disagree
D If you strongly disagree

Please complete all items. There are no right or wrong answers.

		Agree		Disagree	
1.	Smarter deaf people have better speech than deaf people who are less intelligent.	A	B	C	D
2.	Deaf people drive just as safely as hearing people.	A	B	C	D
3.	A deaf person can have the leadership abilities needed to run an organization.	A	B	C	D
4.	It is unfair to limit deaf people to low-paying, unskilled jobs.	A	B	C	D
5.	A deaf person could get a Ph.D. or a Masters degree.	A	B	C	D
6.	If a boss has a problem with a deaf employee, the boss should talk with the interpreter, rather than the deaf person.	A	B	C	D
7.	A deaf person could be promoted to a management position.	A	B	C	D
8.	An 18-year-old deaf adult is capable of living alone and taking care of him- or herself.	A	B	C	D
9.	It is nearly impossible for a deaf person to keep up with a hearing person in school.	A	B	C	D

		Agree		Disagree	
10.	It can be frustrating to pay a visit to deaf people because they can't hear you knock at the front door.	A	B	C	D
11.	Deaf people cost tax payers lots of money because they can't keep their jobs.	A	B	C	D
12.	Deaf people should only work in jobs where they don't need to communicate with anyone.	A	B	C	D
13.	It is a mistake to leave a baby alone with a deaf person, because he/she can't hear the baby cry.	A	B	C	D
14.	Deaf adults must depend on their parents to make important decisions.	A	B	C	D
15.	Signing is not really a language because only simple thoughts can be communicated.	A	B	C	D
16.	A deaf person could not go to a restaurant without a hearing person, because he/she could not order food without assistance.	A	B	C	D
17.	A deaf person can be an excellent writer.	A	B	C	D
18.	Deaf people are as intelligent as hearing people.	A	B	C	D
19.	If there was a fire, a deaf person could get out of a building safely without help just as easily as a hearing person could.	A	B	C	D
20.	Deaf adults are able to communicate with their hearing children.	A	B	C	D

VALIDITY STUDIES - FIRST ADMINISTRATION

In order to determine the validity of the scale, the Attitude to Deafness scale (Cowen et al., 1967), heavily used by deaf professionals, was administered with the authors' scale during the first administration to determine construct validity of the new scale. For the 35-item version of the authors' scale, the correlation with Cowen's scale was .84 ($p < .001$). The correlation increased slightly when the 20-item version was compared to Cowen's scale, producing a product-moment correlation coefficient of .86 ($p < .001$). The results of this analysis provided good evidence for the construct validity of the new scale. It should be noted that the authors did not expect a near perfect correlation, as the Cowen scale measures general attitudes toward deaf people, while the authors' scale only examines attitudes toward the capabilities of deaf people.

ITEM TRYOUTS - SECOND ADMINISTRATION

Method

Revisions

Based on prior concerns about limiting the scale to considerations about deaf people who sign and excluding deaf oralists, revisions were made to the consent form and background sheet prior to the second administration.

Consent form. On the consent form for the first administration, subjects were informed about a background sheet that would request information on the subjects' "experience with deaf people and sign language." The phrase "and sign language" was deleted from the consent form for the second administration. The revised consent form is included as Appendix "S."

Background sheet. In soliciting information on prior experience with deaf people, the background sheet for the first administration asked about experience with "deaf people who use sign language." For the second administration background sheet, the phrase "who use sign language" was eliminated. Another change to the background sheet for the second administration was the inclusion of "Major" and "Ethnicity," as data was desired in these areas. The revised background sheet is included on the next page.

No. _____

Background Information (Revised)

Please answer the following questions:

1. Sex: _____ 2. Age: _____

3. Major: _____

4. Class level: (Circle one)

Fresh Soph Jr. Sr. Masters Doctoral Not in School

5. Highest Degree: (Circle one)

High School A.A. Bachelors Masters Doctoral

6. Ethnic Category: (Circle one)

Caucasian African American Native American Asian

Hispanic Other _____

7. Please check the item or items below that indicate your past experience with deaf people. (You can check more than one item.)

___ I have never met a deaf person.

___ I have met a deaf person before.

___ I have worked with a deaf person.

___ I have been in a class with a deaf person.

___ I have deaf friends.

___ I have a deaf family member or relative.

8. Please check the item or items below that indicate your past experience with sign language. (You can check more than one item.)

___ I cannot fingerspell or use sign language.

___ I can fingerspell a little bit.

___ I know a few signs.

___ I have fair signing skills.

___ I am a skilled signer

The Setting

The revised 20-item Opinions about Deaf People scale was piloted on September 2, 1993, in two sections of a course entitled "Sociology of Family" at the University of Oklahoma. This course met the upper-division general education requirement for a "Western Civilization and Culture" course. For both class sections, a pilot of the authors' revised scale was conducted at the beginning of the normally scheduled class time in the students' regular classroom. Cowen's Attitude to Deafness Scale (Cowen et al., 1967) was administered following the completion of the authors' scale for the purposes of establishing construct validity. The revised background sheet was also completed by each subject.

The Sample

All subjects were currently enrolled in one of two sections of an undergraduate "Sociology of Family" course. Students did not receive class credit for participation in this study.

A total of 299 students (123 males, 173 females, and 3 gender unknown) agreed to participate in this pilot study. Nine subjects' surveys were eliminated from the data analysis due to multiple responses on one or more scale items (n = 3) or failure to complete all scale items (n = 6). The remaining sample included 290 subjects (120 males, 167 females, and 3 gender unknown; ages 18 to 50). Demographics were reported on the background information sheet completed by each subject and are included in Appendix "T." (A review of the data in the category "Highest Degree" revealed several confusing responses. For example, a senior circled the choice "doctorate." From this and other responses, it appeared that some of the subjects circled their highest degree objective, rather than their highest degree obtained. In light of this confusion, descriptive statistics for this category are not reported). A review of the descriptive statistics on the background sheets revealed that the majority of the subjects were college seniors (42%). It may be of interest to note that only a few of the subjects had deaf relatives or family members (9%). A larger portion of subjects, however, had experience with deaf classmates (29%) and/or deaf coworkers (13%). As this was a general education class, this sample appeared to be representative of a typical undergraduate student population. Although most of the subjects were from the College of Arts and Sciences (53%), there were students from most of the other colleges, including Allied Health (22%), Business Administration (9%), and Engineering (7%).

The Procedure

Group administration. The scales were administered simultaneously to all students who attended class on the pilot day. (It might be interesting to note that only 57% of the currently enrolled students were present.) The scale was administered at the beginning of each class period. To avoid prolonging the administration period, students who arrived more than ten minutes late for class were not given scales to complete.

Consent form. The authors' again obtained exempt human subjects status for the second administration through the University's Office of Research Administration. In order to protect the subjects, the consent form was not attached to the completed scale. Subjects did not write their names on any part of the scales or background sheet. Each set of scales was identified by a number. This number was not recorded on the consent form, and scales and consent forms were placed into two separate piles.

Administration. Approximately five minutes into the class period for each class section, one of the authors (Berkay) was introduced and gave verbal instructions to the students. The students were told that they were going to fill out two attitude scales on deafness and a background form. They were asked to complete all items and requested not to confer with one another while completing the scales. Another one of the authors (Gardner) was then introduced. He stressed that the subjects would not be identified in any way, and he also emphasized the importance of participating in research. Next the instructor addressed the class and also requested that the students do their best to carefully and thoughtfully complete the scales. Following these instructions, the scales, background sheets, and consent forms were distributed and filled out by the students. When it appeared that all subjects had completed all items, the papers were collected by the authors (Berkay and Gardner), who thanked the students for their participation and then left the classroom.

Test taking behavior. The subjects in this pilot appeared to take this study seriously. There was minimal talking, however, when two or three subjects in the second class section appeared to be discussing scale items. The effect of this behavior on those few subjects' scores is unknown.

Data Collection

Scoring. Total scores for each subject were determined with the same method used for the first administration. The authors' 20-item scale would allow for a score range of 20 to 80. Cowen's 25-item scale could result in scores from 25 to 100.

Measures. Descriptive statistics were determined for the subjects' total scores on each scale. In addition, the data were analyzed for internal and item-total reliability. A factor analysis was also conducted.

Results

Descriptive Statistics

Total scores by subject. Descriptive statistics for the authors' scale and Cowen's scale are included in Appendix "U." The mean total score for the authors' scale was 30.31 with a standard deviation of 6.76. The range was 20 to 33. Only 272 subjects had completed Cowen's scale, which resulted in a mean of 39 and a standard deviation of 10.22. The range was 23 to 47.

Item frequencies. The frequencies of responses for each item in the authors' scale are described and included in Appendix "V." Most of the items solicited a varied range of responses. Exceptions were three positively stated items, 5, 17, and 18, which elicited "Strongly Agree" responses from over 85% of the subjects.

Correlations and Reliability

Correlation matrix. Appendix "W" includes a correlation matrix for the authors' scale. Correlations among all items are shown.

Reliability. Included in Appendix "X" are reliability coefficients for the authors' scale. This administration resulted in a coefficient alpha of .83 and a split-half reliability of .82. Item-total reliability correlations can be found in Appendix "Y." A table showing item-total correlations in ascending order (also in Appendix "Y") reveals that the correlations ranged from .22 to .58. Only three items obtained correlations lower than .30.

Factor Analysis

Data generated by the factor analysis is presented in Appendix "Z." Although six factors were discovered, only one had an Eigenvalue over 2.00. Factor 1 was the highest with an Eigenvalue of 5.39, accounting for 27% of the variance. An examination of the factor matrix revealed that the majority of the items correlated moderately to strongly with Factor 1. Only Item 2 produced a correlation of less than .30 with this factor. Of the 19 items that correlated over .30 with Factor 1, six items correlated stronger with other factors. The table showing Factor 1 correlations in ascending order (also in Appendix "Z") indicates the items that correlated stronger with other factors, as well as the items that had low item-total correlations.

Standard Error of Measurement

The standard error of measurement for the authors' scale was 2.81, indicating a 95% confidence interval of ±5.51.

Validity

Concurrent validity of the authors' scale was determined for the second administration using Cowen's scale (Cowen et al., 1967). For the 20-item revised version of the authors' scale, the correlation with Cowen's scale was .75 ($p < .001$). The results of this analysis provide good evidence for the construct validity of the revised scale.

Interpretation of Data

The goal of the second administration was to determine the reliability and validity of the revised 20-item scale with a large number of subjects. An interpretation of the data analysis for the second administration is included below:

Descriptive Statistics

The range of scores was somewhat restricted. For most items, few subjects responded with a "4" (the most negative response). One exception was found with Item 2, which generated a "strongly disagree" response from 26% of the subjects for this positive item. The mean value of this sample for the authors' scale was around 30. As the center score on this scale would be 40, this group of subjects collectively demonstrated attitudes leaning toward the positive end. A similar result was obtained from the Cowen scale, as the group mean of 39 was substantially lower than the 50-point center score. Even though this group of subjects was more representative of the general population than the subjects from the first administration, this group of undergraduate students might not adequately represent the general hearing adult population, which includes high school drop-outs. It is no surprise that these educated subjects leaned toward a positive overall attitude with this scale.

Reliability

Although the coefficient alpha for the authors' scale dropped from .90 on the first administration to .83 on the second, this lower coefficient is acceptable for this type of scale (Nunnally, 1978). This drop was not surprising, as shrinkage is normally expected when a test revised with one sample's performance data is administered to a second sample. In addition to the coefficient alpha, the item-total correlations also supported the reliability of the authors' scale. Only three items had item-total correlations below .30.

Factor Analysis

Examination was made of the items that showed low correlations with Factor 1 or that correlated higher with another factor. Two items correlated higher with Factor 2, and four items correlated higher with other factors. These items were examined for different themes. The following was suggested:

1. Two items (17 and 18) correlated the highest with Factor 2 and were related to intelligence of deaf people. Although correlating higher with Factor 1, Item 5 also correlated well with Factor 2, and this item was also related to intelligence of deaf people.

2. One item correlating with Factor 3 (Item 2) and one correlating with Factor 4 (Item 19) were related to perceived danger for deaf people, based on their inability to hear. It is possible that those who believe deaf people are highly capable are concerned about placing them in what is perceived to be a potentially dangerous situation.

3. Item 9 correlated the highest with Factor 5. This item was related to the ability of deaf people to keep up in school. It might be possible that those hearing people who believe that deaf people are capable may have considered possible educational barriers unrelated to capability (e.g., lack of accommodations).

4. Item 1 correlated the highest with Factor 6. This item examined the relationship between good speech and the intelligence of the deaf person. It might be possible that people who believe that deaf people are capable are uncertain about this relationship. Factors other than intelligence that affect speech, such as pre- vs. post-lingual deafness (being deafened before or after language exposure), might be unknown to these subjects. This item might measure ignorance in this area, rather than a negative attitude toward the capabilities of deaf people.

Overall, there appears to be one general deaf capabilities factor (Factor 1), although a few items do also correlate strongly with a second intelligence factor (Factor 2).

ADMINISTRATION GUIDE

In order to standardize this scale, a few instructions should be given to the test administrator. The test administration guide is included on the following pages:

Your Opinions about Deaf People

Administration Guide

Introduction

The following are administration instructions for the Opinions about Deaf People scale. This scale measures a hearing adult's bias or lack of bias toward the capabilities of deaf adults. It should be apparent that there is a discrepancy between the scale's title and its actual measure. There was some concern that if the intent of the scale was explicitly stated, subjects might respond in a socially desirable manner. That is why the scale's title is somewhat ambiguous. If this scale is used to conduct research, subjects should be debriefed and informed of the scale's true purpose following the collection of data.

Description of the Construct

The instrument was based on misconceptions that hearing adults held about the capabilities of deaf adults. A list of misconceptions was obtained from deaf-related literature and interviews with deaf professionals. The following is a description of the construct measured by this scale:

General definition. The construct is a hearing adult's belief in the capabilities of deaf adults. It is assumed that these capabilities are determined by comparing deaf people's capabilities to hearing people's capabilities. The best way to define this construct is to describe two extreme types of hearing individuals: one who believes that deaf people are as equally capable as hearing people and one who believes that deaf people are less capable than hearing people. (It is realized that many people do not fall in either extreme and may believe that deaf people are capable in some areas, while not in others.)

Equal capability belief. A hearing adult who believes that deaf adults have equal capabilities believes that deaf people possess the same intelligence and skill level as hearing people, with the exception of the ability to process verbal language and hear. A hearing person who believes in equal capabilities would be aware that there are many low-functioning deaf people who possess low intelligence and abilities, while there are also many low-functioning hearing people in the same situation. More specifically, the hearing person who believes in equal capabilities holds the following opinions:

1. Deaf people possess the same normal distribution of intelligence as hearing people.

2. Most deaf people are able to: (a) take care of themselves and live independently; (b) gain and maintain employment in either blue- or white-collar occupations, depending on their qualifications; (c) drive safely on public roads; (d) perform academically on a comparable level with their hearing peers; and (e) find ways to communicate with hearing people, even when an interpreter is not present.

Unequal capability belief. A hearing adult who believes that deaf adults have less capabilities than hearing people believes that deaf people possess lower intelligence and skill level than hearing people. A hearing person with unequal capability beliefs is unaware that there are ranges of deaf people from low functioning to genius. All deaf people are lumped into one category. More specifically, the hearing person who believes in unequal capabilities holds the following opinions:

1. Deaf people possess a narrower and lower range of intelligence than that of the hearing population.

2. Deaf people are unable to: (a) take care of themselves and live independently, (b) work in white-collar jobs (c) drive safely, (d) perform academically on a comparable level with their hearing peers; and (e) communicate with hearing people unless an interpreter is present.

Administration

This scale can be administered either individually or in a group. Subjects should be given the scale and told to complete all items. If more than one individual is present, subjects should be instructed not to discuss the items amongst each other. If a subject asks for clarification of a particular item or items, the administrator should respond, "It would be better if you decided what this means to you. Why don't you look at the item again and answer it as best as you can." In no case should the administrator explain any of the items to the subjects while they are completing the scale.

Scoring

Total scores. There are twenty items in this scale, worth one to four points each. As this is a summative scale, each subject's score can be calculated by adding up the points for all 20 items. The possible range of scores is from 20 to 80. A low score reflects a positive attitude about the capabilities of deaf adults, while a high score reflects a negative attitude. There are no cut-off points. The scores should be looked upon as indicating degrees of positiveness or negativeness in relationship to the total possible points. Scores below the

middle score of 40 lean toward equal capability beliefs, while those above 40 tend toward unequal capability beliefs.

Positive and negative statements. There are 10 positively stated and 10 negatively stated items. Agreement with a negative statement or disagreement with a positive statement reflects a negative attitude toward the capabilities of deaf adults. The positive and negative items were randomly dispersed throughout the scale.

Positive statements. The following points should be assigned for positive statements: Strongly Agree-1, Mildly Agree-2, Mildly Disagree-3, Strongly Disagree-4. The following items are positive statements: 2, 3, 4, 5, 7, 8, 17, 18, 19, and 20.

Negative statements. For the negative statements, the Likert scale needs to be reversed to assign the following points: Strongly Agree-4, Mildly Agree-3, Mildly Disagree-2, Strongly Disagree-1. The following items are negative statements: 1, 6, 9, 10, 11, 12, 13, 14, 15, and 16.

Scoring key. On the following pages is a key that will assist you in scoring the items. When scoring the scale, it is best to compare the position of the response circled by the subject to its position on the key to determine the points for each item. The points in the matching position on the key can then be written next to the item on the subject's scale. (The positive or negative direction of each item is also indicated in parentheses following each item.)

Your Opinions about Deaf People

Key for Scoring

		Agree		Disagree	
1.	Smarter deaf people have better speech than deaf people who are less intelligent. (-)	4	3	2	1
2.	Deaf people drive just as safely as hearing people. (+)	1	2	3	4
3.	A deaf person can have the leadership abilities needed to run an organization. (+)	1	2	3	4
4.	It is unfair to limit deaf people to low-paying, unskilled jobs. (+)	1	2	3	4
5.	A deaf person could get a Ph.D. or a Masters degree. (+)	1	2	3	4
6.	If a boss has a problem with a deaf employee, the boss should talk with the interpreter, rather than the deaf person. (-)	4	3	2	1
7.	A deaf person could be promoted to a management position. (+)	1	2	3	4
8.	An 18-year-old deaf adult is capable of living alone and taking care of him- or herself. (+)	1	2	3	4
9.	It is nearly impossible for a deaf person to keep up with a hearing person in school. (-)	4	3	2	1
10.	It can be frustrating to pay a visit to deaf people because they can't hear you knock at the front door. (-)	4	3	2	1
11.	Deaf people cost tax payers lots of money because they can't keep their jobs. (-)	4	3	2	1
12.	Deaf people should only work in jobs where they don't need to communicate with anyone. (-)	4	3	2	1

		Agree		Disagree	
13.	It is a mistake to leave a baby alone with a deaf person, because he/she can't hear the baby cry. (-)	4	3	2	1
14.	Deaf adults must depend on their parents to make important decisions. (-)	4	3	2	1
15.	Signing is not really a language because only simple thoughts can be communicated. (-)	4	3	2	1
16.	A deaf person could not go to a restaurant without a hearing person, because he/she could not order food without assistance. (-)	4	3	2	1
17.	A deaf person can be an excellent writer. (+)	1	2	3	4
18.	Deaf people are as intelligent as hearing people. (+)	1	2	3	4
19.	If there was a fire, a deaf person could get out of a building safely without help just as easily as a hearing person could. (+)	1	2	3	4
20.	Deaf adults are able to communicate with their hearing children. (+)	1	2	3	4

Reliability and Validity

A pilot was conducted with 290 students (120 males, 167 females, and 3 unknown gender; ages 18-50) enrolled in an upper-division general-education Sociology course. A coefficient alpha of .83 and a split-half reliability of .82 was obtained. Item-total correlations ranged from .22 to .58. Only three correlations were below .30. A factor analysis demonstrated a common factor (Factor 1) with an Eigenvalue of 5.39, accounting for 27% of the variance. Item correlations with this factor ranged from .25 to .67. Although there appears to be one general deaf capabilities factor (Factor 1), a few items (5, 17, and 18) also correlate moderately to strongly with an intelligence factor (Factor 2). This factor had an Eigenvalue of 1.70 and accounted for 8.5% of the variance. The standard error of measurement for this scale was 2.81, and the 95% confidence interval is ± 5.51. Construct validity was established through the administration of Cowen's Attitude on Deafness scale (Cowen, Rockway, Bobrove, & Stevenson, 1967) following the administration of the authors' scale. The Opinions about Deaf People scale correlated with Cowen's scale at .75 ($p < .001$).

DISCUSSION

Limitations

There were some limitations to this study:

1. The sample for the first administration was small and homogeneous. Choosing items to be retained for the 20-item revised scale based on the performance of such a small sample may have caused the shrinkage in the coefficient alpha for the second administration.

2. The final revised test contains an uneven dispersement of negative and positive statements. The original 35-items were randomized on the test, and the negative and positive statements were more evenly dispersed. The removal of the 15 discarded items resulted in large clumps of negative and positive statements. The effect that this may have on future administrations of the 20-item scale is unknown at this time.

3. There were a few items that didn't correlate strongly with the main factor, and there were a couple problems with adherence to the test blueprint.

Conclusion

Although a few limitations existed in this study, it appears that a reliable and valid scale may have been produced for the purposes of measuring a hearing person's bias or lack of bias toward the capabilities of deaf adults. Few adjustments needed to be made to the original test blueprint in order to retain the 20 most reliable and/or factor-related items. For the second administration, the reliability and validity of the scale remained above acceptable standards. This instrument's development was motivated by the authors' belief that one of the first steps in changing negative attitudes toward deaf people is to measure and determine the attitudes that need to be changed.

Several uses can be made of this scale. A few suggestions are as follows:

1. The scale can be administered to a group of employees in a large corporation prior to a deaf awareness workshop, in order to assess general attitudes and misconceptions needing to be addressed.

2. The scale can be administered to the parents of deaf children and correlated with their children's grade-point averages to determine whether a relationship exists between the attitudes of parents toward the capabilities of deaf adults and their deaf child's success in school.

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APPENDICES

Cowen's Attitude to Deafness Scale Items with Direction of Keying and Two Independent Sets of Item-Test Correlations (Cowen et al., 1967)

Items		*r1	*r2
1.	The deaf generally have a less mature personality than the hearing (N)**	.64	.46
2.	In general, deaf people are more neurotic than those who hear. (N)	.74	.36
3.	It is impossible to really get "close" to a deaf person. (N)	.57	.59
4.	Deaf people somehow seem sadder and more wrapped up in themselves than hearing people. (N)	.59	.80
5.	The deaf do not seem to be bothered by ordinary life events any more than hearing people. (P)	.51	.33
6.	Because of his need to be pitied, it is particularly important that the deaf person have someone very tolerant to whom he can talk. (N)	.49	.31
7.	Deaf people also seem to have more than the usual number of other physical complaints. (N)	.46	.59
8.	Deaf people show personality characteristics which frequently make them seem odd. (N)	.64	.66
9.	A person who is deaf is as apt to be born a leader as anyone else. (P)	.46	.17
10.	Deaf people seem to be overly polite and to lack spontaneity. (N)	.48	.79
11.	Most deaf people feel that they are worthless. (N)	.59	.59
12.	Most deaf people are dissatisfied with themselves. (N)	.53	.45

13.	The deaf have as many interests as the hearing have. (P)	.52	.44
14.	The deaf adult is not quite as mature or "grown-up" as the hearing adult. (N)	.56	.55
15.	It's difficult to understand the deaf because they keep so much to themselves. (N)	.73	.62
16.	It must be bitterly degrading for a deaf person to depend so much on others. (N)	.62	.39
17.	On the whole, deaf children seem to be less intelligent than hearing children. (N)	.49	.51
18.	I feel that deafness is as hard to bear as complete paralysis. (N)	.57	.32
19.	A deaf person can't afford to talk back to people. (N)	.56	.07
20.	You should not expect too much from a deaf person. (N)	.48	.62
21.	A deaf person is constantly worried about what might happen to him. (N)	.60	.60
22.	A deaf person is not afraid to express his feelings. (P)	.51	.15
23.	Deaf people are more easily upset than people who can hear. (N)	.46	.12
24.	The deaf are prone to have many more fears about the world than the hearing. (N)	.72	.60
25.	The deaf are usually on their guard with people. (N)	.83	.58

* r1 is based on 100 male and female introductory psychology students from evening extension-school classes; r2 is based on 160 male introductory psychology students from the regular day-session classes.

**N indicates that agreement with the item reflects a negative attitude; P indicates that agreement with the item reflects a positive attitude.

Knowledge of Deafness

Pre-test

This is a reproduction of an unpublished deaf awareness workshop pre-test (Department of Health Services, 1993). The correct answers are underlined.

1. _____% of speech sounds are visible on the lips:

   a. 30%
   b. 60%
   c. 90%

2. Persons who are deaf can drive automobiles:

   a. True
   b. False

3. Persons who are deaf have an IQ range:

   a. Lower than the general population
   b. Higher than the general population
   c. Same as the general population

4. Persons who are deaf have eyesight:

   a. Same as the general population
   b. Better than the general population
   c. Worse than the general population

5. Persons who are deaf read in braille:

   a. True
   b. False

6. Most children who are deaf are born to parents who are deaf:

   a. True
   b. False

7. Most persons who are deaf need a hearing person to help take care of them:

   a. True
   b. False

8. Most persons who are deaf cannot use their voice:

   a. True
   b. False

9. Which is the appropriate term to use for a person that cannot hear?

   a. Deaf
   b. Deaf/Mute
   c. Deaf/Dumb
   d. None of the above

10. Sign Language is the same in every country:

   a. True
   b. False

11. Persons who are deaf hear no sound at all:

   a. True
   b. False

12. All persons who are deaf tend to be paranoid:

   a. True
   b. False

13. Persons who are deaf are a poor insurance risk:

   a. True
   b. False

Questionnaire for Hearing People

Preliminary Questionnaire to Assist in the Development of a Scale to Measure a Hearing Person's Belief about the Capabilities and Intelligence of Deaf People

Please answer the following questions on a separate sheet of paper and provide as many examples as possible:

1. What are some misconceptions that hearing people hold about the intelligence of deaf people?

2. What are some misconceptions that hearing people hold about the capabilities of deaf people?

3. What are some misconceptions that hearing people have about deaf people's abilities in a school setting?

4. What are some misconceptions that hearing people have about deaf people's abilities in a work setting?

5. What are some misconceptions that hearing people have about deaf people's abilities to take care of their daily needs?

6. What are some misconceptions that hearing people have about deaf people's abilities to serve in the military?

7. What are some misconceptions that hearing people have about deaf people's abilities to drive?

8. What are some misconceptions that hearing people have about deaf people's abilities to handle themselves in an emergency?

9. What are some misconceptions that hearing people have about deaf people's abilities to deal with businesses? (For example, ordering in a restaurant.)

10. What are some misconceptions that hearing people have about deaf people's abilities to care for children?

11. What are some misconceptions that hearing people have about deaf people's abilities to hold leadership positions?

12. What are some misconceptions that hearing people have about deaf people's abilities to make decisions for themselves?

13. What are some misconceptions that hearing people have about deaf people's abilities in other areas?

14. Describe an incident in a school setting when a hearing teacher or student thought that a deaf student was incapable of doing something.

15. Describe an incident in a work setting when a hearing boss or co-worker thought a deaf worker could not handle a task.

16. Describe an incident you observed in a store or restaurant when a hearing person did not think that a deaf person was capable of doing something for him- or herself.

17. Describe an incident when you observed a parent or relative of a deaf person act as if the deaf person could not do something for him- or herself.

18. Describe an incident at a public agency when the agency worker believed that a deaf person was incapable of doing something.

19. Describe any other specific incidents in which a hearing person misjudged the intelligence or ability of a deaf person.

Background Questions:

1. Are you deaf, hard of hearing, or hearing?

2. What is your name, company, and present job title?

3. What experience do you have working in the field of deafness?

4. Do you have a special area of expertise in the field of deafness?

Questionnaire for Deaf People

Preliminary Questionnaire to Assist in the Development of a Scale to Measure a Hearing Person's Belief about the Capabilities and Intelligence of Deaf People

Please answer the following questions on a separate sheet of paper and provide as many examples as possible:

1. What are some misconceptions that hearing people hold about the intelligence of deaf people?

2. What are some misconceptions that hearing people hold about the capabilities of deaf people?

5. What are some misconceptions that hearing people have about deaf people's abilities in a school setting?

4. What are some misconceptions that hearing people have about deaf people's abilities in a work setting?

5. What are some misconceptions that hearing people have about deaf people's abilities to take care of their daily needs?

6. What are some misconceptions that hearing people have about deaf people's abilities to serve in the military?

7. What are some misconceptions that hearing people have about deaf people's abilities to drive?

8. What are some misconceptions that hearing people have about deaf people's abilities to handle themselves in an emergency?

9. What are some misconceptions that hearing people have about deaf people's abilities to deal with businesses? (For example, ordering in a restaurant.)

10. What are some misconceptions that hearing people have about deaf people's abilities to care for children?

11. What are some misconceptions that hearing people have about deaf people's abilities to hold leadership positions?

12. What are some misconceptions that hearing people have about deaf people's abilities to make decisions for themselves?

13. What are some misconceptions that hearing people have about deaf people's abilities in other areas?

14. Describe an incident this year at school when a hearing teacher or student thought that you were incapable of doing something.

15. Describe an incident recently at your job when a hearing boss or co-worker thought that you could not handle a task.

16. Describe an incident in a store or restaurant when a hearing person did not think you were capable of doing something for yourself.

17. Describe an incident when a family member or relative acted as if you could not do something for yourself.

18. Describe an incident at a public agency when the agency worker believed that you were incapable of doing something.

19. Describe other specific incidents in which a hearing person misjudged your abilities or intelligence?

Background Information

1. Are you deaf or hard of hearing?

2. What is your name, company, and present job title?

3. What experience do you have working in the field of deafness?

4. Do you have a special area or expertise in the field of deafness?

Demographics of Pilot Subjects - First Administration

	Frequency	Percent
Class Level		
Sophomore	3	8%
Junior	7	18%
Senior	23	61%
Masters	5	13%
TOTAL	38	100%
Highest Degree		
High School	25	66%
A.A.	5	13%
B.S.	8	21%
TOTAL	38	100%
Previous Contact with Deaf People		
Never met a deaf person	3	8%
Met a deaf person	35	92%
TOTAL	38	100%
Deaf Friends or Relatives		
Worked with a deaf person	6	16%
In class with a deaf person	14	37%
Have deaf friends	5	13%
Have deaf family member or relative	3	8%

Signing Experience

Cannot fingerspell or sign	16	43%
Know a few signs	21	57%
Have fair signing skills	0	0%
Skilled signer	0	0%
*TOTAL	37	100%

*One missing value. One subject failed to respond to the question.

University of Oklahoma, Norman Campus

Consent for Participation in a Research Project

You are going to participate in a study to examine opinions on deafness. The study is being conducted by Paul Berkay, a doctoral student in the Instructional Psychology and Technology Program.

Today you will fill out two questionnaires:

1. Your Opinions on Deaf People

2. Attitude Scale on Deafness

You will also fill out a brief form that will tell us about your background and experience with deaf people and sign language. The whole process should take about one-half hour. You will not be taking any risk or be harmed by this research. This study will help us find out about opinions on deafness.

Your participation is voluntary. You can stop at any time and will not be penalized in any way. To make sure your responses are confidential, your name will not go on the forms you will fill out.

If you have any questions about this research, you may contact Paul Berkay at 325-5974.

****

I agree to participate in this study. I understand all of the above statements.

_____ _____

Name Date

Total Scores by Subject - First Administration

Opinions about Deaf People Scale (35 items) and Cowen Scale

SUBJECT	COWEN	OPINION-35
1	27	55
2	25	45
3	48	57
4	64	79
5	46	62
6	46	64
7	46	58
8	51	73
9	28	50
10	49	51
11	46	69
12	38	56
13	35	48
14	25	37
15	28	59
16	31	44
17	26	42
18	31	63
19	67	86
20	58	84
21	32	48
22	30	54
23	44	74
24	30	55
25	45	57
26	29	42
27	30	52
28	35	55
29	33	53
30	34	50
31	51	70
32	44	63
33	31	40
34	33	57
35	40	62
36	30	50
37	25	39
38	33	57

Descriptive Statistics for Opinions about Deaf People Scale

First Administration

(35-Item Scale)

Mean Total Score	56.842	S.E. Mean	1.936
Std Dev	11.936	Variance	142.461
Kurtosis	.222	S.E. Kurt	.750
Skewness	.651	S.E. Skew	.383
Range	49.000	Minimum	37
Maximum	86	Sum	2160.000

Descriptive Statistics for Cowen's Scale

First Administration

Mean Total Score	38.000	S.E. Mean	1.781
Std Dev	10.977	Variance	120.486
Kurtosis	.249	S.E. Kurt	.750
Skewness	.935	S.E. Skew	.383
Range	42.000	Minimum	25
Maximum	67	Sum	1444.000

Frequencies of Responses by Item

First Administration

N1 - Value	Frequency	Percent
1.0	9	23.7
2.0	18	47.4
3.0	5	13.2
4.0	6	15.8
TOTAL	38	100.0

N2 - Value	Frequency	Percent
1.0	26	68.4
2.0	9	23.7
3.0	2	5.3
4.0	1	2.6
TOTAL	38	100.0

N3 - Value	Frequency	Percent
1.0	28	73.7
2.0	7	18.4
3.0	2	5.3
4.0	1	2.6
TOTAL	38	100.0

N4 - Value	Frequency	Percent
1.0	7	18.4
2.0	5	13.2
3.0	17	44.7
4.0	9	23.7
TOTAL	38	100.0

N5 - Value	Frequency	Percent
1.0	26	68.4
2.0	8	21.1
3.0	4	10.5
TOTAL	38	100.0

N6 - Value	Frequency	Percent
1.0	5	13.2
2.0	7	18.4
3.0	21	55.3
4.0	5	13.2
TOTAL	38	100.0

N7 - Value	Frequency	Percent
1.0	26	68.4
2.0	12	31.6
TOTAL	38	100.0

N8 - Value	Frequency	Percent
1.0	8	21.1
2.0	10	26.3
3.0	14	36.8
4.0	6	15.8
TOTAL	38	100.0

N9 - Value	Frequency	Percent
1.0	30	78.9
2.0	6	15.8
3.0	2	5.3
TOTAL	38	100.0

N10 - Value	Frequency	Percent
1.0	34	89.5
2.0	3	7.9
4.0	1	2.6
TOTAL	38	100.0

N11 - Value	Frequency	Percent
1.0	36	94.7
2.0	2	5.3
TOTAL	38	100.0

N12 - Value	Frequency	Percent
1.0	28	73.7
2.0	7	18.4
3.0	3	7.9
TOTAL	38	100.0

N13 - Value	Frequency	Percent
1.0	32	84.2
2.0	5	13.2
3.0	1	2.6
TOTAL	38	100.0

N14 - Value	Frequency	Percent
1.0	5	13.2
2.0	7	18.4
3.0	17	44.7
4.0	9	23.7
TOTAL	38	100.0

N15 - Value	Frequency	Percent
1.0	29	76.3
2.0	6	15.8
3.0	2	5.3
4.0	1	2.6
TOTAL	38	100.0

N16 - Value	Frequency	Percent
1.0	17	44.7
2.0	13	34.2
3.0	6	15.8
4.0	2	5.3
TOTAL	38	100.0

N17 - Value	Frequency	Percent
1.0	12	31.6
2.0	16	42.1
3.0	9	23.7
4.0	1	2.6
TOTAL	38	100.0

N18 - Value	Frequency	Percent
1.0	28	73.7
2.0	6	15.8
3.0	2	5.3
4.0	2	5.3
TOTAL	38	100.0

N19 - Value	Frequency	Percent
1.0	24	63.2
2.0	11	28.9
3.0	3	7.9
TOTAL	38	100.0

N20 - Value	Frequency	Percent
1.0	14	36.8
2.0	18	47.4
3.0	6	15.8
TOTAL	38	100.0

N21 - Value	Frequency	Percent
1.0	7	18.4
2.0	11	28.9
3.0	13	34.2
4.0	7	18.4
TOTAL	38	100.0

N22 - Value	Frequency	Percent
1.0	24	63.2
2.0	12	31.6
3.0	2	5.3
TOTAL	38	100.0

N23 - Value	Frequency	Percent
1.0	11	28.9
2.0	8	21.1
3.0	12	31.6
4.0	7	18.4
TOTAL	38	100.0

N24 - Value	Frequency	Percent
1.0	23	60.5
2.0	13	34.2
3.0	2	5.3
TOTAL	38	100.0

N25 - Value	Frequency	Percent
1.0	32	84.2
2.0	5	13.2
4.0	1	2.6
TOTAL	38	100.0

N26 - Value	Frequency	Percent
1.0	30	78.9
2.0	6	15.8
3.0	2	5.3
TOTAL	38	100.0

N27 - Value	Frequency	Percent
1.0	13	34.2
2.0	18	47.4
3.0	7	18.4
TOTAL	38	100.0

N28 - Value	Frequency	Percent
1.0	19	50.0
2.0	12	31.6
3.0	6	15.8
4.0	1	2.6
TOTAL	38	100.0

N29 - Value	Frequency	Percent
1.0	29	76.3
2.0	7	18.4
3.0	2	5.3
TOTAL	38	100.0

N30 - Value	Frequency	Percent
1.0	30	78.9
2.0	7	18.4
3.0	1	2.6
TOTAL	38	100.0

N31 - Value	Frequency	Percent
1.0	29	76.3
2.0	8	21.1
3.0	1	2.6
TOTAL	38	100.0

N32 - Value	Frequency	Percent
1.0	35	92.1
2.0	3	7.9
TOTAL	38	100.0

N33 - Value	Frequency	Percent
1.0	35	92.1
2.0	3	7.9
TOTAL	38	100.0

N34 - Value	Frequency	Percent
1.0	20	52.6
2.0	10	26.3
3.0	8	21.1
TOTAL	38	100.0

N35 - Value	Frequency	Percent
1.0	32	84.2
2.0	5	13.2
3.0	1	2.6
TOTAL	38	100.0

Correlation Matrix for Opinions about Deaf People Scale (35 Items)

First Administration

	N1	N2	N3	N4	N5
N1	1.0000				
N2	.1751	1.0000			
N3	.1549	.0055	1.0000		
N4	.3466	.0076	.0986	1.0000	
N5	.2249	.2338	.1722	.1232	1.0000
N6	.4851	.0023	.0183	.4454	.1836
N7	.1433	-.0042	.4485	.3425	.2476
N8	.1684	-.0960	.2020	.2795	.0559
N9	.1917	-.0142	.0899	.2662	.0564
N10	.0368	.1010	.1240	-.0681	.3963
N11	-.0508	.0261	.2114	.0609	.3773
N12	.4899	.1509	.1939	.3100	.2225
N13	.3303	.3325	-.0480	.1057	.0912
N14	.4726	-.0635	.3125	.5957	.3849
N15	.3183	.2394	.1717	.1636	-.0265
N16	.2275	.0396	.1513	.2385	.3509
N17	.4055	.0648	.1092	.1192	.2129
N18	.2520	-.0334	.1423	.2286	-.0832
N19	.4407	.2231	.2781	.2630	.1743
N20	.0265	.3390	.1048	.1823	.2457
N21	.0756	.0960	.2872	.3453	.2587
N22	-.1990	-.1087	.2597	-.2096	.1496
N23	-.0039	-.0107	.1535	.3548	.2755
N24	.3818	.3637	.2352	.2384	.3184
N25	.0622	.1059	.0691	-.1315	.0433
N26	.0933	.2561	.3632	.2662	.1277
N27	.0100	.0275	.0639	.3440	.0842
N28	.3042	.0732	.0477	.0347	.0299
N29	.0813	.0244	.3986	.1342	.4459
N30	.1730	.1691	.4397	.0197	.2595
N31	.1027	.1332	.1743	.2932	.0621
N32	-.0630	.1010	.1240	-.0202	.3963
N33	-.0630	.1010	.1240	-.0202	.3963
N34	.0852	.1877	.0197	-.0375	.0515
N35	-.0283	.0864	.1179	.1057	.1779

	N6	N7	N8	N9	N10
N6	1.0000				
N7	.3804	1.0000			
N8	.2978	.4741	1.0000		
N9	.1205	.2942	.3034	1.0000	
N10	.1639	.4309	.2534	.3944	1.0000
N11	.0864	.3469	.2436	.5330	.3680
N12	.1533	.1733	.1217	.3560	-.0041
N13	.1499	.0992	.1579	.6577	.4219
N14	.4009	.3888	.5240	.2585	.0135
N15	.0483	.0725	.1457	.5219	.2058
N16	.4072	.4617	.3991	.4267	.2817
N17	.4402	.4411	.3424	.1343	.1299
N18	-.0355	-.0037	.1437	.4006	.1480
N19	.3536	.5009	.3725	.4933	.3309
N20	.3728	.2876	.2210	.1459	.2293
N21	.1942	.4381	.5211	-.0127	.0905
N22	.0544	.2824	.3329	.2272	.5347
N23	.2730	.3256	.1191	-.1744	-.0165
N24	.3276	.4416	.3101	.4478	.3547
N25	.0819	.0471	.1494	.3292	.2346
N26	.1205	.2942	.1096	.3843	.3052
N27	.3496	.3114	.3683	.2432	.1342
N28	.3159	.3073	.2318	.4025	.2212
N29	.1355	.4595	.2751	.6131	.5481
N30	.0532	.3701	.3695	.5609	.5635
N31	.2558	.5521	.2275	.5202	.3362
N32	.1073	.4309	.2534	.5728	.8190
N33	.1073	.4309	.2534	.5728	.8190
N34	.3524	.4106	.3547	.0698	.4215
N35	.2177	.3506	.2167	.5509	.5302